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ABSTRACT

Man: A Course of Study (MACOS), a social studies curriculum based on a process curriculum design and the inquiry method, was the subject of a research project conducted as part of the overall evaluation project of the MACOS curriculum. The report focuses on the teacher's role in the MACOS curriculum, specifically with expectations for performance and attitudinal factors of teacher behavior. The project attempted to identify behaviors, operationally defined, which constitute child-centered instruction; the problems associated with the evaluation of child-centered, nondirective, dialectical teaching; the instruments most effective and efficient for evaluating these behaviors; and the child-centered behaviors and attitudes exhibited by teachers of MACOS. The rationale, procedures, and review of data-gathering instruments are followed by results and discussion. In summary, the instruments seem to constitute a promising battery for assessing the degree to which teachers adopt student-centered behaviors and attitudes as a result of teaching the MACOS curriculum. Appendices containing the instruments, base data, and quotes and drawings follow a bibliography. (Author/KSM)

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An Investigation of an Instrument Battery Related to the Expectancies for Student-Centered Teaching Behaviors in *Man: A Course of Study*

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Susan M. Dalfen
Richard E. Ripple

Department of Education
Cornell University
Ithaca, New York
1970

Final Report
Eastern Regional Institute for Education
Syracuse, New York

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TABLE OF CONTENTS

Page

Acknowledgements i

Section I: Background and Rationale — 1

Rationale 1

Section II: Procedure 20

Sample 20
Pre-testing of Instruments 21
Observation Procedures 21

Section III: Review of Data - Gathering Instruments 26

Opinionaire 26
Interview 28
Draw-a-Classroom 30
Dogmatism Scale 31
Semantic Differential 32
Flanders System of Interaction Analysis 36
Ryans Classroom Observation Record 38
Informal Classroom Record and Checklist 41

Section IV: Results and Discussion 42

Opinionaire - M:ACS 42
Social Studies Opinionaire - non-M:ACS 52
Interview format 53
Draw-a-Classroom 59
Dogmatism Scale 60
Semantic Differential 68
Flanders System of Interactinn Analysis 70
Ryans Classroom Observation Record 73
Informal Classroom Record and Checklist 74
Summary 76

Bibliography 79

Appendix A: Instruments

Opinionaire - M:ACS
Opinionaire - Non-M:ACS
Interview format
Draw-a-Classroom
Dogmatism Scale
Semantic Differential
Flanders System of Interaction Analysis (category listing)
Ryans Classroom Observation Record and Glossary
Informal Classroom Record and Checklist

TABLE OF CONTENTS
(cont.)

Appendix B: Base Data

Base Data - M:ACS Teachers
Base Data - Non-M:ACS Teachers
Base Data - Flanders Comparisons

Appendix C: Quotes and Drawings

Quotations from Interviews
Draw-a-Classroom - M:ACS Teachers
Draw-a-Classroom - Non-M:ACS Teachers

LIST OF TABLES

TABLE		PAGE
1	Summary of Comparisons Considered	23
2	Summary of M:ACS Teachers' Responses to Opinionaire Questions 1 through 6	44
3	Summary of M:ACS Teachers' Responses to Opinionaire Questions 7 through 12	45
4	Summary of Non-M:ACS Teachers' Responses to Opinionaire Questions 1 through 5	49
5	Summary of Non-M:ACS Teachers' Responses to Opinionaire Questions 6 through 11	50
6	Interview Data	55
7	Summary of Comparisons of M:ACS Samples (Flanders, Ryans, Checklist, Dogmatism)	62
8	Comparisons of M:ACS and Non-M:ACS Samples on Semantic Differential	63
9	Summary of Comparison of Volunteers and Non-volunteers within M:ACS Sample	65
10	Summary of Comparisons of M:ACS Subgroups divided on basis of years of experience	66
11	Summary of Comparisons of High I/D and Low I/D Groups across M:ACS and Non-M:ACS Samples	67

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SECTION I

BACKGROUND AND RATIONALE

As the world of the twentieth century changes with increasing rapidity, it becomes more and more difficult to decide what information a student needs to learn; what, from the vast amount of knowledge, is relevant for his future life. Man: A Course of Study, a social studies curriculum formulated by Jerome Bruner and others, is an attempt, through the use of a process curriculum design and the inquiry method of learning, to stress the development of general cognitive skills.

This research project was conducted as part of the overall evaluation project of the M:ACS curriculum sponsored by the Eastern Regional Institute for Education.

The report will focus on the teacher's role in the M:ACS curriculum and will specifically be concerned with the first expectation for teacher behavior as it is stated in the ERIE document "Expectancies for Teacher Behavior." The expectation is subdivided as follows:

Performance expectation:

> Teaching strategies shall become increasingly child-centered, non-directive, and dialectical rather than teacher-centered, highly directive, and didactic.

Attitudinal expectation:

> Teachers shall exhibit positive attitudes toward child-centered, non-directive instruction and shall reject strictly teacher-centered, highly directive, and didactic methods.

In order to deal with this teacher expectation in a meaningful manner, two very basic problems were considered first: those of definition and instrumentation. Besides developing a rationale for the particular expectation under consideration, it was necessary to compile a list of behaviors which could serve as a definition of the term "child-centeredness" and to coordinate a battery of instruments to tap these particular behaviors. This report, therefore, will include a brief discussion of process and the inquiry method with particular emphasis on *M:ACS* as an example of a process curriculum using the inquiry, or discovery, method of teaching. A summary presentation of the learning principles upon which much of the design of the *M:ACS* curriculum was based, as well as a description of some of the behaviors stressed in the teacher seminars written specifically for *M:ACS*, will supplement this discussion of the inquiry method and will serve as rationale for the particular teacher expectation in question. A brief discussion of the research that has been done in the area of child-centeredness will then be presented with emphasis on the lack of uniformity and rigor in definition and instrumentation--this to result in the compilation of a composite list of representative child-centered behaviors.

The following research questions serve as a concise preview of the research project.

1. Which behaviors, operationally defined, constitute child-centered instruction?
2. What are the problems associated with the evaluation of child-centered, non-directive, dialectical teaching?

3. Which instruments most effectively and efficiently evaluate these behaviors?
4. Which child-centered behaviors and attitudes do teachers of Man: A Course of Study exhibit?

Rationale

Process curriculum. M:ACS was built on the premise that since the body of information to be learned in any field is no longer easily identifiable, "the only feasible approach is to help the student acquire some of the more relevant and central information and those intellectual skills which will enable him to adapt and expand this limited knowledge acquired in his formal schooling" (Cole, 1969,, p. 5). These intellectual skills are referred to as processes. Emphasis on process implies that a greater importance is attached to the methods of acquiring and using knowledge than on the specific facts learned. By stressing the various processes of exploring, observing, questioning, inferring, generalizing, and elaborating, educators hope that the child will become an active learner. All these processes, and many more, can be subsumed under the general rubric "inquiry," also referred to as discovery learning in much of the current literature.

The inquiry method, endemic to process curriculum, involves a problematic situation which results in examination of facts, formulation of hypotheses and testing these with all available pertinent evidence. Mistakes are an integral part of this process as they encourage students to re-examine their positions and experience the consequences of performing on their own. The student who participates in discovery learning should gain generalized insights related to the subject studied and, because of his personal active involvement, should show greater ability and disposition in applying the techniques of inquiry with which he has been working.

The basic patterns of thought which the student is encouraged to recognize encompass both the content of the subject and the particular way of approaching it. Jerome Bruner (1966) whose concern with discovery learning has led to the creation and dissemination of MACS, has suggested that its particular way of thinking is central to any discipline and that it is important in teaching to permit the child at the earliest possible moment to learn this way of thinking. With particular reference to the process of inquiry, Bruner (1960) also believed that in order to master any field a student must not only learn the basic ideas but also must approach the learning task with an attitude of inquiry. There is an emphasis on acquiring the kind of intellectual discipline that allows one to recognize new problems when they arise and to apply the knowledge that has already been acquired to their solution. What is involved is both a desire and a capacity to learn for oneself, to judge for oneself what is worth learning, and to be minimally dependent on the facts and opinions of others.

Man: A Course of Study as process curriculum. As a result of this concern with process, new curricula are being developed with the aim of promoting these intellectual skills and generalizable behaviors. One such curriculum is *Man: A Course of Study*, a one-year social studies course for upper elementary grades developed by the Social Studies Curriculum Program of Education Development Center, Inc., in Cambridge, Massachusetts. The development of *MACS* was much influenced by the ideas of Jerome Bruner who is himself concerned with the promotion of intellectual habits rather than of content. He would claim that the "principal emphasis in education should be placed upon skills - skills in handling, in seeing and imaging, and in symbolic operations" (Bruner, 1966, p. 34) and would stress the need for "a way of transmitting the crucial ideas and skills, the acquired characteristics that express and amplify man's powers" (Bruner, 1966, p. 38).

The content of the course is man and the questions around which it was designed bear on the distinctiveness of man's adaptation to the world and on the continuity between him and other species. Three questions recur throughout the course: *What is human about human beings?* *How did they get that way?* *How can they be made more so?* These queries are posed directly to the children so that their own views can be brought into the open and so that they can establish some points of view of their own.

The questions are pursued by exploring five contributors to man's humanization - tool-making, language, social organization, the management of man's prolonged childhood, and man's urge to explain his world -- and the success of the course, in the eyes of the designers, depends largely on promoting in the children a sense of interaction among the separate domains. There is a continual stress on recognizing underlying patterns and commonalities and in abstracting from the particular to the general.

The materials of the course, consisting of films, other visuals, written materials, records and enactive devices such as games, provide a range of media, styles and complexities to stimulate and involve children of varying abilities and interests. The films are used to simulate field observations, and through repeated viewing result in information gathering and question formulation. The booklets (replacing a single textbook) supply data and stress concepts; they are supplemented by field notes, journals, poems, songs, and stories. The games, construction exercises and observation projects are activities that allow children to work in groups and alone with minimal teacher direction.

Aside from the stress on data gathering and hypothesis generation in the manner of the social scientist, there is also a great consideration of the affective domain. The course designers claim that one criterion for the selection of materials was the drama, artistry and ingenuity they possessed. In this way an atmosphere conducive to the open expression of feeling and creative impulse would be provided. For instance, through studying the customs surrounding child birth in the culture of the Netsilik Eskimos, the children can compare these practices with their own and in the course of this comparison openly express their feelings about these and related issues.

Rather than merely impart knowledge to the pupil, MACS seeks to teach him to take part in the process that results in the establishment of knowledge. Children are constantly encouraged to try out theories in order to become experienced in using alternative models of thought. For example, they might watch a film about Eskimo seal hunting; but before it is shown, they try to figure out how the Eskimos will distribute themselves in order to achieve maximum success. They assume the role of the social scientist and attempt to generate hypotheses and theories, as if they were scouts venturing forth onto an as yet uncharted and unexplored path. By stimulating the art of getting and using information, the course designers hoped to stimulate self-consciousness about thinking, for "children should be at least as self-conscious about their strategies of thought as they are about their attempts to commit things to memory" (Bruner and Dow, 1967, p. 29).

Just as the course shies away from imposing truth from without, so does it avoid leaving the child to his own unguided spontaneity. Since all activity takes place within a particular situation, the value of a course of study is to allow the educator, by indirection, to direct the learner's course.

For Bruner and his colleagues, the ideal behaviors and attitudes resulting from exposure to *M:ACS* and process curriculum are summarized in the following statements:

1. To give our pupils respect for and confidence in the powers of their own mind.
2. To extend that respect and confidence to their power to think about the human condition, man's plight, and his social life.
3. To provide a set of workable models that make it simpler to analyze the nature of the social world in which we live and the condition in which man finds himself.
4. To impart a sense of respect for the capacities and humanity of man as a species.
5. To leave the student with a sense of the unfinished business of man's evolution.

These five goals stress both cognition and affect and hence can be termed the overall general objectives of the course.

The role of the teacher in process. In discussing the nature and goals of discovery learning, it becomes increasingly clear that the concept of a teacher's role undergoes a shift in emphasis. The traditional role of transmitter of knowledge becomes one of arranger of experiences conducive to observing, questioning, hypothesizing. In assuming the primary role of motivator, the teacher stimulates and challenges student thought. He initiates problem situations and poses leading questions which direct the students' search - open-ended questions that elicit tentative, qualified solutions. The task of information-giver is modified so that it surfaces only to redirect activity that has become directionless and to guide students to reference material and other sources of information. The teacher functions largely as encourager of ongoing activity and diagnostician of the students' difficulties. In the realm of control, he attempts to guide the children toward self-discipline, a vital component of the discovery approach to learning. He encourages challenges to so-called "authoritative" material, as well as a tolerance of different points of view. In order to help students find meaning in their environments, he encourages them to form, of their varied experiences, their own personal organizations.

Throughout their period of exposure to the curriculum, the M:ACS teachers participate in inservice training seminars, designed to parallel the classroom situation, so that the teacher becomes experienced in the process of inquiry, comfortable with divergent responses and open-ended discussion and receptive to student questioning. He is permitted to experience inquiry learning firsthand; for instance, through seeing the baboon films, participating in discussion, : questioning, hypothesizing, generalizing, etc. so that he can anticipate, both cognitively and affectively, what his students will be experiencing. There is much talk about "no easy answers" and "many frameworks," and the success of these seminars seems to rely on the creation of an atmosphere where ideas and feelings are expressed and shared -- an atmosphere compatible with a student-centered approach.

Teachers ponder questions related to their role in starting discussions, posing questions, exchanging information and points of view. The suggestions for developing lesson plans stress the integration of the child's own experience with, for example, the life cycle of the salmon or the religious customs of the Netsilik Eskimo. Teachers consider the problem of how to help the children express their own concerns and benefit from the creative expression of others as well as how to make the situation relevant to the children and how to deal with the students' tolerance level for insoluble dilemmas. These considerations, along with many others, are, in actuality, questions related to various aspects of a student-centered classroom; for example, student-student interaction, expression of students' feelings, relation of material to personal experience, etc. In this way, the seminar materials do not provide merely a general manual of teaching methods. Instead, through their particular focus, they guide the teachers toward a student-centered behavior pattern.

In his article entitled "The Act of Discovery," Bruner (1964) distinguished between teaching in the "expository mode" and teaching that used a "hypothetical mode." In the former, decisions about manner, pace and style of exposition were determined by the teacher as expounder while the pupil listened. In the latter, the teacher and pupil were in more of a co-operative position regarding decisions. Students took part in their formulation and at times played the major role, so that they were aware of alternatives and evaluated incoming information. The aim of the teacher was to help the students obtain a firm grasp of the subject and make him an independent, self-directed thinker. Bruner's distinction falls along very similar, if not the same, lines as that of teacher-centered vs. student-centered instruction, and his preoccupation with this distinction is related to his concern with promoting discovery learning in the classroom. This preoccupation is, therefore, reflected in the pattern of teacher behavior encouraged in MACS.

Conceptions of student-centeredness. Past research on the effectiveness of student-centered approaches to teaching is not conclusive; comparisons of various studies are difficult because of vague and/or different interpretations of student-centered instruction and because of weaknesses of evaluative instruments. The following review of studies was conducted in order to establish a comprehensive list of operationally-defined characteristics of student-centered teaching which appear to be common to most research studies.

W. J. McKeachie (1954), in an effort to distinguish between the stereotyped concepts of student-centered and instructor-centered methods, established two dimensions of difference: goals and methods of teaching. In the instructor-centered class, the teacher was responsible for the goal-setting, while in the student-centered class both the teacher and the students determined group goals. Another difference was reflected in the type of objectives established. The instructor-centered teacher tended to stress the traditional intellectual goals of learning for learning's sake; the student-centered teacher, on the other hand, was more interested in learning that affected the social and emotional development of the child, as well as his intellectual advancement. McKeachie suggested five dimensions of teaching methods as differentiating teacher- and student-centered instruction:

1. degree of student participation and student-student interaction
2. degree of instructor acceptance of inaccurate statements
3. degree of group cohesiveness
4. ability of students to determine their own fate
5. amount of time devoted to discussing personal experiences and problems.

In a somewhat more general manner, Carl R. Rogers (1961) described student-centeredness from a clinical viewpoint. Stressing an "accepting climate," he believed that the teacher's role was to set the mood of freedom and permissiveness, thereby helping to elicit and clarify the ideas of the class members.

Faw (1949 in Gage, 1963), in a pioneering study on student-centered teaching at the college level, suggested that the student-centered approach differed from the teacher-centered approach in two ways: 1) the goals in the former were determined by the students and tend to be more oriented toward affective and attitudinal changes than toward intellectual advancement; and 2) the classroom procedure was based on much student participation with an emphasis on the interchange of student experiences, feelings and ideas.

Anderson and Brewer (1946) chose "dominant" and "socially-integrative" as their categories of teacher behavior. The dominant teacher was characterized as attempting to make others behave according to his own standards, as obstructing spontaneous behavior of others, and as expressing resistance to change. The socially-integrative teacher, on the other hand, was flexible, adaptive, objective, and co-operative. Anderson and Brewer operationally defined a student-centered approach as one which included questioning of the children to determine their interests, helping each child to define and solve a problem and approving, commending, and accepting the child's behavior.

Many of the studies done on classroom climate (Perkins, 1949; Faw, 1949; Flanders, 1949; Asch, 1951; Johnson and Smith, 1953; Landsman, 1950; Bloom, 1953 - all cited in Gage, 1963) described teacher behavior in terms of the authoritarian-democratic dimension. This was defined on one extreme by the teacher who did most of the talking, directing, explaining, goal setting, assignment making and evaluation, and on the other by the teacher who allowed these activities to devolve to a far greater extent upon the learners. Lack of clear and consistent findings in these studies might well be due to the fact that this definition lacked operational precision, as well as to the possibility that the authoritarian-democratic construct was an inadequate basis for research because it attempted to summarize complex group interaction into a single dimension. Because of the many additional subdimensions of the construct, including affective, procedural and task areas, the authoritarian-democratic construct, as used in the research, was probably an ill-defined and over-simplified conception of group interaction (Anderson, 1959).

Another approach to identifying and measuring student-centeredness is the structuring of interaction systems. In order to build such instruments, the author must define student-centeredness both theoretically and operationally so that the rater is able to identify representative behaviors, subsumed by the concept, when they occur in the classroom. The types of categories and behaviors representative of these categories, therefore, provide additional definitions of student-centeredness.

Using Anderson's extensive research as a basis, Withall (1949) created a climate index to assess the teacher's verbal behavior in the classroom. Assuming that the teacher's verbal behavior was a valid sample of his total behavior, Withall established seven categories: 1) learner-supportive statements, 2) acceptant and clarifying statements, 3) problem-structuring statements, 4) neutral statements, 5) directive or hortative statements, 6) reproving remarks, and 7) teacher self-supporting remarks. These statements defined a continuum from socially-integrative behaviors on the one end to dominative behaviors on the other. An indirect-direct (I/D) ratio, a measure of student- vs. teacher-centered behaviors, could thus be obtained through the use of this scale.

Flanders (1967), author of a commonly-used interaction analysis technique, established ten categories and operational definitions of each. These were divided into teacher talk, student talk, and silence or confusion. The teacher talk categories were further subdivided into statements limiting student freedom, termed direct behavior, and statements expanding the freedom of the students, termed indirect behavior. (See Appendix A for the delineation of categories.)

Definition of student-centeredness. Close examination of the various studies revealed a number of common elements which could contribute to a consolidated definition of student-centeredness. In his review of studies on classroom climate, McKeachie (1963) attempted to bring together many of these characteristics by grouping them under the dimensions of goals and classroom activities. The characteristics listed by McKeachie covered a wide range of those included in the definition which served as the basis for this study. However, since the investigators were guided by the expectation as it was presented in the ERIE document, the characteristics were divided in terms of *performance* and *attitudes*. More importantly, they are accompanied by representative behaviors serving as operational definitions of the characteristics.

In most of the studies and definitions cited in the research, student participation in goal determination was a significant element of student-centeredness. However, in the *MIACS* curriculum, students are not the prime goal-setters, for the course developers had specific learning objectives in mind and designed the curriculum so that these would be achieved. The teachers, though, are given options regarding the inclusion or exclusion of certain lessons, the use of particular materials and so on. Thus, they can encourage student participation in the determination of day-to-day activities, if not in ultimate objectives. In addition, the flexibility which the course allows in the selection of individual projects or research can add to the student's control of his own learning experience.

Since attitudes are less easily recognizable and quantifiable than are behaviors through classroom observation, the attitudinal expectation under consideration was dealt with in terms of those feelings which seemed consistent with a student-centered approach. Although performance is not necessarily grounded in an underlying attitude, it would seem that possession of certain attitudes would promote and facilitate student-centered behaviors.

The attitudes related to student-centeredness can be divided into attitudes about the student as a person, those regarding the student's role in the classroom, and finally, specific attitudes toward the teacher's role in the classroom.

1) View of the child:

    a) Each child is worthy of respect, not to be qualified by his status as a minor, by his intellect, etc.
    b) The emotional, intellectual, social and physical development of the child must be recognized as a desirable end in and of itself.

2) The role of the child in the classroom:

    a) The child should be the center of classroom activity.

b) The child should be an active rather than a passive member of the class, initiating ideas and activities.

3) The role of the teacher in the classroom:

a) The teacher should serve as a guide and facilitator, rather than director or leader of classroom activities.
b) The teacher should function as the creator of a warm, encouraging, accepting atmosphere.
c) The teacher should value individualization of the learning process and independent discovery.
d) The teacher should be open and receptive to student contributions, considering each one useful and worthy of consideration.

The performance expectations of student-centeredness subsume general tendencies which can be operationally defined in terms of exemplar behaviors.

Tendencies	Exemplar Behaviors
1) much student participation in classroom discussion and activities	a. Distribute attention to all students.
	b. Encourage student opinion.
	c. Encourage students to make their own decisions.
	d. Encourage students to initiate activity and follow through on ideas.
	e. Take advantage of the interests of the students.
	f. Use different grouping techniques.
	g. Provide a variety of options to account for individual differences.
2) much student-student interaction	a. Use different grouping techniques.
	b. Withdraw from the center of the activity in order to serve as guide rather than director.
	c. Encourage students to listen and speak to each other.
	d. Pose open-ended questions best dealt with through dialogue.
	e. Encourage shared evaluation of ideas.

Tendencies	Exemplar Behaviors
3) acceptance of erroneous or irrelevant student contribution	a. Make little use of censure. b. Encourage students to assess their contributions, particularly through class discussion. c. Emphasize the importance of a tolerance for ambiguity related to the openness of most issues. d. Allow students to defend their opinions.
4) use of personal experiences as a vehicle for discussion	a. Ask questions which can be answered in terms of the student's own experiences. b. Relate the materials to the student's experiences.
5) emphasis on affect and on attitudinal changes	a. Show an awareness of and a concern for the student's personal problems and needs. b. Emphasize the importance of a tolerance of others through placing import on interpersonal communication. c. Encourage students' affective reactions to materials. d. Question students regarding their emotional reaction to materials.
6) shared responsibility for evaluation	a. Encourage students to assess their intellectual progress. b. Elicit student comments and criticism about every issue. c. Elicit feedback from students regarding their satisfaction with the content and conduct of the course.

The six tendencies that have been delineated above serve ideally to create a warm and accepting classroom atmosphere in which the students feel free to volunteer ideas, enter willingly into activities, and are unthreatened by the possibility of error or of failure. The teacher, who exhibits these tendencies, functions as a guide, facilitator and motivator of classroom activities and is, by definition, a student-centered teacher.

SECTION II

PROCEDURE

Sample

The teachers involved in this study were those whose names appeared on the list of NSF/MACOS teachers sent to the investigators at Cornell from the ERIE office in Syracuse. The five areas represented were Buffalo, Cortland, Fredonia, Geneseo, and Lockhaven; and the total number of teachers in these areas was 33. The sample was reduced to 31, as one teacher left her school and another was not at the school indicated on the list.

Each of these teachers received the opinionaire along with the Draw-a-Classroom test, the Dogmatism Scale, and the semantic differential[1] by mail. The cover letter, signed by the three members of the Cornell team, requested their help in a project of evaluation of M:ACS and asked that they return the materials as soon as possible. Twenty-four were returned and constituted the final sample.

Three cluster samples, representing Buffalo, Fredonia, and Cortland, were selected for in-depth study. A total of 14 teachers from these areas were observed in their M:ACS classrooms and later interviewed by the investigators.

Twelve fifth and sixth grade social studies teachers (who were not teaching M:ACS) from the same schools as those in the cluster samples were observed and completed an opinionaire designed especially for them. This was done to obtain data from a comparison group of teachers since there was no opportunity to obtain premeasures on or to randomize the MinACS teachers before evaluation procedures began. It was recognized that this in no way constituted a control group, but it was thought worthwhile to obtain some data which would be amenable to comparison.

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[1] All the instruments will be described in detail in Section III.

Entry into the schools was arranged through John Herlihy, project director of ERIE, and arrangements at the particular schools were made with the administrators concerned.

Pretesting of Instruments

Before the mailing of materials and the observation and interviewing of teachers was officially begun, one of the MinACS teachers completed the opinionaire packet to determine its usability and to elicit criticisms and comments concerning the format, content, and length of these written instruments. Since no problems arose, it was decided to send out the materials to the total sample of teachers. In addition, the Flanders system, Ryans Classroom Observation Record, and interview format were tested; and the investigators were satisfied both with their usability and with the inter-rater reliability. Since the responses elicited by the instruments seemed commensurate with the criteria behaviors that had been established, the battery format was left intact.

Observation Procedures

The investigators observed an entire MinACS lesson. The first few minutes were spent in orienting to the general situation and atmosphere in the classroom and in noting, on the informal observation checklist, the topic and method of introducing the lesson and the materials to be used. Throughout the class period, a time record was kept to indicate transition from one type of activity to another.

Twelve minutes of teacher and student verbal interaction were then categorized, using the Flanders System of Interaction Analysis. Although up to 30 minutes were amenable to categorization in some classes, only the first 12 of these were used. This was done for consistency and uniformity since many classes were engaged in diverse activities and only about one-third of these periods was suitable for the Flanders system.

The observer made notes regarding specific behaviors and events transpiring during the class period and later filled out the Ryans Classroom Observation Record, in the form revised for this study, attempting to relate specific behaviors of the teacher and pupils to those behaviors listed in the Ryans Glossary.

As soon after the class period as possible, the teacher was interviewed privately by the observer. This interview lasted approximately 20 minutes.

The investigators had correctly anticipated that there would be a lack of time to interview the comparison group. For this reason, their opinionaire had beeh designed to include many of the items contained in the interview format.

After the visits to the schools were completed, thank-you letters were mailed to the participating teachers and administrators. Follow-up letters, reminding the teachers to return the opinionaires, were sent out twice, at two to three week intervals.

This research was financed by the Eastern Regional Institute for Education, and all the demographic data, as well as access to the schools, was provided by the agency.

Table 1 presents a preview listing of the various comparisons considered, using the instruments to be described in Section III. The results obtained and subsequent discussion will be presented in Section IV.

TABLE 1

SUMMARY OF COMPARISONS CONSIDERED

Instrument	Comparisons made	Test
1. Opinionaire	M:ACS vs. non-M:ACS	Type and frequency of group response
2. Interview	M:ACS vs. non-M:ACS	Type and frequency of group response
3. Draw-a-Classroom	M:ACS vs. non-M:ACS	Descriptive comparisons
4. Dogmatism Scale	M:ACS vs. non-M:ACS	t-test
	1-6 years vs. 11-21+ years	t-test
	volunteers vs. non-volunteers	t-test
	indirect vs. direct	t-test
5. Semantic Differential	M:ACS vs. non-M:ACS	t-test

Instrument	Comparisons made	Test
6. **Flanders System**		
a) I/D ratio (Indirect/ Direct teacher behavior)	M:ACS vs. non-M:ACS	t-test
	1-6 years vs. 11-21+ years	t-test
	volunteers vs. non-volunteers	t-test
b) Teacher Talk	M:ACS vs. non-M:ACS	t-test
	1-6 years vs. 11-21+ years	t-test
	volunteers vs. non-volunteers	t-test
c) Direct Teacher Talk	M:ACS vs. non-M:ACS	t-test
	1-6 years vs. 11-21+ years	t-test
	volunteers vs. non-volunteers	t-test
d) Student Talk	M:ACS vs. non-M:ACS	t-test
	1-6 years vs. 11-21+ years	t-test
	volunteers vs. non-volunteers	t-test
e) Student Talk: teacher-solicited	M:ACS vs. non-M:ACS	t-test
f) Student Talk: student-initiated	M:ACS vs. non-M:ACS	t-test
7. Ryans Classroom Observation Record:		
a) Pattern X	M:ACS vs. non-M:ACS	t-test
	1-6 years vs. 11-21+ years	t-test
	volunteers vs. non-volunteers	t-test
	indirect vs. direct	t-test
b) Pattern Y	M:ACS vs. non-M:ACS	t-test
	1-6 years vs. 11-21+ years	t-test
	volunteers vs. non-volunteers	t-test
c) Pattern Z	M:ACS vs. non-M:ACS	t-test
	1-6 years vs. 11-21+ years	t-test
	volunteers vs. non-volunteers	t-test
	indirect vs. direct	t-test

Instrument	Comparisons made	Test
8. Checklist		
a) Activities	*M:ACS* vs. non-*M:ACS*	t-test
	indirect vs. direct	t-test
b) Objectives	*M:ACS* vs. non-*M:ACS*	percent of type of goal compared

N.B. The *M:ACS* and non-*M:ACS* samples were compared on various additional measures in the Flanders categorization, but the differences were not significant. These measures are included as base-line data in Appendix B.

SECTION III

REVIEW OF DATA-GATHERING INSTRUMENTS

The following instruments were designed and/or selected to form the preliminary battery to tap student-centered behaviors in M:ACS teachers:

1. Opinionaire
2. Interview format
3. Draw-a-Classroom test
4. Dogmatism Scale
5. Semantic Differential
6. Flanders System of Interaction Analysis
7. Ryans Classroom Observation Record
8. Informal Classroom Record and Checklist

Copies of these instruments can be found in Appendix A.

Opinionaire*

Description and rationale. A twelve-item opinionaire was constructed to obtain both factual data regarding the sample of teachers and descriptive reports of classroom behavior. The six items of factual data were sex, level of education, major area of college study, years of teaching experience, rating of subject areas, and initial involvement in M:ACS. These items were included to provide possible categories which would differentiate between teachers possessing and lacking expected behavioral and attitudinal qualities.

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* A similar opinionaire was designed for the comparison group of non-M:ACS social studies teachers. This opinionaire contained the same six factual items, descriptions of classroom episodes, and items probing familiarity with the concept of student centeredness and discovery learning. Included with the opinionaire were the Draw-a-Classroom, the Dogmatism Scale, and the Semantic Differential.

In order to minimize the amount of bias introduced by the investigators, no mention was made of student-centeredness, discovery learning or process curriculum.

Questions were asked which required the teachers to compare their own teaching methods and the behavior of their pupils in the MACS curriculum with those of previous social studies classrooms. Rather than present a checklist of possible behavioral changes, these items were designed to elicit reports of descriptive classroom episodes. It was hoped that these would be less influenced by the investigation procedure and provide as candid a view of the actual classrooms as possible. In addition to the items involving classroom episodes, the teachers were asked to list possible problems encountered in teaching MACS in order to determine their source -- methodological, practical, or contextual.

The final item, asking the teachers to indicate whether they would continue with the curriculum, was designed to elicit an overall evaluation and the salient features underlying it — again, methodological, practical, contextual.

As designed, the opinionaire was short enough to maximize the possibility of returns and yet obtain moderately detailed and descriptive data. It was recognized that the element of subject bias is a major limitation in any opinionaire, particularly one requiring reports of personal behavior and attitudes. However, the investigators felt that its use was justified, for a measure of reported behavior can serve as a bridge between objective attitudinal and behavioral measures of student-centeredness.

Time allowance. The estimated time for completion of the opinionaire was 15 to 20 minutes.

Scoring. The factual information was coded and the answers to the open-ended questions were categorized on the basis of the responses presented. These categories and their frequency of occurrence were then compared to the behavioral and attitudinal criteria of student-centeredness, in order to determine the degree to which the opinionaire might elicit responses relevant to student-centeredness.

Interview

Description and rationale. The interview, a six-question instrument, was designed to supplement the opinionaire data and, by means of open-ended questions, to obtain more detailed information.

Questions (numbers 3 and 4) dealing with the teachers' familiarity with and understanding of "discovery learning" and "student-centeredness" were included to assess the teachers' cognitive command of these concepts which are so central to MACS and to this study in particular. One question (number 5) was constructed to tap opinion regarding the value of student-centeredness in the general learning process, aside from the specific MACS curriculum -- this to determine whether the teachers considered student-centeredness to be a viable and generalizable method of instruction. Two items (numbers 1 and 2), concerning the effect of MACS on a teacher and the criteria of a good lesson, were designed to elicit responses in terms of actual classroom behaviors. In addition, one item (number 6) dealing with ideal recruitment procedures was included to give the teachers an opportunity to list those personality and behavioral traits which they felt were essential to a process approach. These last three items would ideally corroborate and expand upon the data obtained in the opinionaire.

In order to lessen the bias which any investigator might introduce as a function of his own opinions and expectations relating to student-centeredness, probes to follow up the separate items were established beforehand, thereby maximizing the possibility of a uniform interview situation.

Time allowance. The time required to conduct a complete interview was estimated to be 20 minutes.

Scoring. The interview data were not quantified. Rather, the subjects' responses were combined and categories subsuming all the varied responses were created. This was done in order to determine the congruence of the teachers' responses with the behavioral and attitudinal expectations of the study, without limiting their responses to a finite list.

Reliability. Inter-rater consistency was established before the interview format was used. This was done by conducting sample interviews jointly, reaching agreement about manner of recording, and comparing notes. Any further claim to reliability, however, rested solely on the consistencies which seemed to surface in the types of responses elicited by the opinionaire and the interview items, since both instruments were designed to measure much the same thing.

Draw-a-Classroom

Description and rationale. The Draw-a-Classroom technique, a projective device similar to the Draw-a-Man test, asked the teacher to draw a picture of a teacher with a class on a blank sheet of paper. In formulating this technique, Rabinowitz and Travers (1955) assumed that since no person drew a picture in a vacuum, the representations would inevitably display some of the ideas the subjects had acquired. Undoubtedly, the picture drawn would represent conscious selection of material. The MACS teachers, who were very familiar with the curriculum and the probable expectations of the investigators, would probably reflect a high degree of selectivity in their presentations. Despite this, it was believed that the individual would reveal some highly personal ideas through the arrangement and details of his picture. Although not readily quantifiable, the Draw-a-Classroom technique was selected in this project as one method of measuring the teacher's perception of an ideal classroom scene. The arrangement of the children, the location of the teacher, the physical distance between the children and the teacher, the degree of control possessed by the teacher and students, the amount and proportion of detail relegated to students, the teacher, the materials, etc., should provide a projective measure of child- vs. teacher-centeredness.

Time allowance. To be an effective projective measure, the drawing should ideally be done immediately after reading the instructions and should take no more than 15 minutes.

Dogmatism Scale

Description and rationale. In an attempt to measure teachers' attitudes in a more unobtrusive manner than that permitted by the other instruments, the investigators selected the Dogmatism Scale designed and described by Rokeach (1960). This particular scale purports to cut across content area to measure the degree of openness and closedness of a person's belief system as well as his general authoritarianism and intolerance. According to Rokeach, openness can be defined in terms of the ability to receive and evaluate information on its own intrinsic merits. He suggested that it is this cognitive ability which is the fundamental identity underlying such characteristics as reliance on authority, conformance, yielding, resistance to acculturation, intolerance of ambiguity, and so on, which usually describe a "dogmatic" person in daily life. Since these characteristics, as personality traits, would seem inimical to a student-centered teaching approach, the investigators were interested in obtaining the teachers' scores on the Dogmatism Scale and comparing them to observed and reported classroom behaviors. For example, it was hypothesized that a high score on the dogmatic end of the continuum would coincide with highly-directive verbal behavior as measured by the Flanders Interaction Analysis, a negative evaluation of the concepts related to student-centeredness included in the semantic differential, and reported behaviors which could be classified as teacher-centered in terms of the definition compiled by the investigators.

Form E of the Scale consists of 40 items and underwent five revisions in an attempt to increase reliability and validity. The statements express ideas familiar to the average person and were inspired by spontaneous remarks overheard from people thought intuitively to be closed-minded. A sample of a typical item is "Most people just don't know what's good for them."

Time allowance. Fifteen to 20 minutes.

Scoring. The subjects were asked to mark each statement on a continuum from +3 to -3 (there is no 0), depending on how they felt about each item. Answers ranged from very great agreement (+3) to very great disagreement (-3). In totaling the responses, a constant of +4 was added to the reading of each item so that the final score could range anywhere from 40 to 280. The lower the score, the more open-minded the person was assumed to be.

Reliability. With the norm group used in Rokeach's studies, the reliability scores ranged from .68 to .93. He considered these reliabilities to be quite satisfactory considering the seeming unrelatedness of the items on the surface. The fact that subjects agreed or disagreed with the items in a consistent manner was borne out by item analyses which he performed on the data from his various groups.

Semantic Differential

Description and rationale. The semantic differential was developed by Osgood, Suci, and Tannenbaum (1957) as a technique for measuring the various facets of meaning that a concept has for an individual. It is not, however, a "test" with a definite set of items and a specific score. Rather, it is a technique of measurement which must be adapted to the requirements of the particular research problem for which it is used. The method consists of rating a concept on a number of scales anchored on the extremes by bipolar adjectives. The subject is instructed to place a check-mark in that position on a five-, seven-, or nine-point scale which indicates both the direction and intensity of his judgment. In the search for common factors among the scales, to be used as measures of the different facets of meaning, the originators performed numerous factor analytic studies which resulted in three major factors of meaning -- evaluation, potency, and activity, which together accounted for more than 50 per cent of the common variance -- as well as an unknown number of additional factors specific to particular studies, for example, receptivity, tautness, stability, novelty.

The semantic differential was chosen as an instrument for this research because numerous studies have shown that the valuative factor seemed to provide an index to the location f an attitude object along a general evaluative continuum. t can thus serve as a generalized attitude scale. In addition, uch criticism is leveled at standard measures of attitudes s they do not seem to be good predictors of actual behavior in real-life situations. It is likely that attitude scores indicate a disposition toward certain classes of broadly defined behavior but that overt behavior depends largely on the context of the real-life situation. The originators of the semantic differential theorized that attitude was only one dimension necessary for prediction and that combined judgments from scales representing other dimensions would offer more complete information, thereby improving prediction. Thus, the instrument would seem to be appropriate as a generalized attitude scale as well as a possible predictor of overt behavior.

After considering numerous concepts which related to student- and teacher-centeredness and to the M:ACS curriculum, the following five concepts were included in the instrument: discovery-learning, student-student interaction, ambiguity, student initiative in the classroom, and teacher as transmitter of knowledge. The scales were chosen on the basis of their factorial composition (taken from the factor analyses done by Osgood et al.), and their seeming relevance to the concepts to be judged. Because of the particular interest of the investigators in the evaluative dimension, five representative scales were selected and these were genuine-artificial, important-trivial, pleasant-unpleasant, valuable-worthless, and harmonious-dissonant. Scales loading on the activity factor were active-passive and hard-easy, while those loading on the potency factor were tense-relaxed and constrained-free. However, this last factor was eliminated in subsequent analysis because of the difficulty encountered in defining the term and the seeming irrelevance of the concept-scale pairing. Finally, because of the particular concerns of this study, the investigators were interested in assessing the relative novelty that the concepts had for the subjects, so that the following scales, loading on novelty, were included: unique-commonplace, strange-familiar, and modern-old-fashioned. Analysis led to the elimination of the final scale because it measured a different aspect of novelty than did the first two and its use led to a reduction in the amount of information obtained. Maximum effort was made to choose concepts and scales whose results would have face validity; that is, people would cluster the concepts in much the same way without using the instrument.

Time allowance. It was expected that subjects could make the necessary 60 judgments in five to ten minutes, based on the reported experience of the designers.

Scoring. The investigators were particularly interested in the difference between different groups in the meaning of the same concept, whether the grouping be on the basis of *M:ACS* vs. non-*M:ACS* or subgroups within the *M:ACS* sample. Therefore, factor scores were calculated for each concept to obtain a profile for each individual, and then summed over individuals within groups for the purpose of analysis.

Another descriptive measure (aside from factor scores) which can be obtained with the semantic differential is that of distance (D). This allows the comparison of meanings between concepts for the same individual or group, as well as measurement of the conceptual congruence between individuals or groups across a set of concepts. Unfortunately, the assumptions regarding equality of scale intervals and independence of scales, underlying the use of the D score, could not be met with any degree of certainty. Therefore, use of the D score is mentioned only in terms of its promise in future research as a measure of the differences in meanings as wholes, since it takes into account the relations on all factors simultaneously.

Flanders System of Interaction Analysis

Description and rationale. In order to obtain an objective measure of the teachers' classroom behavior, the Flanders Interaction Analysis was selected. Briefly, it consists of classifying verbal communication into ten categories at an average rate of one classification every three seconds. Seven categories are used to classify teacher statements, two for pupil statements, and one for silence or confusion. The set of ten categories is assumed to be totally inclusive of all statements heard in a classroom. They are mutually exclusive categories since one, and only one, tally is recorded for each event observed.

The seven teacher categories are divided into indirect and direct statements, and this classification gives central attention to the amount of freedom the teacher grants the student. The assumption underlying the design of the instrument is that in a given situation, the teacher has a choice between being direct thereby minimizing the freedom of the student to respond, and being indirect thereby maximizing his freedom to respond. His choice, whether it be conscious or unconscious, depends upon many factors, including his perception of the class, his particular goals, etc. The category system does not imply a scale and makes no value judgment regarding direct or indirect behavior. "Each teacher must discover for himself his own unique over-all balance between indirect and direct influence; he must also discover his own rules concerning which patterns of behavior are most appropriate to various learning situations" (Flanders, 1963, p. 13). The system of analysis can, however, help the investigator make predictions about the effects of certain kinds of combinations of behavior in the classroom and these will be discussed at greater length below.

It must be noted that the Flanders system is concerned with verbal behavior only as the designers found that this could be observed and recorded with a higher degree of reliability than non-verbal behavior. Also, they assumed that an individual's verbal behavior is an adequate sample of his total behavior.

Aside from the fact that the Flanders' direct—indirect dimension seemed particularly relevant to the theoretical framework of this investigation, the system was selected on the basis of its wide general usage and its economy and practicality regarding observer training and actual classroom application. Other systems were investigated and subsequently rejected because they required complicated equipment and/or complex categorization and seemed less suitable to the concept of student-centeredness under investigation.

Time allowance. The observers visited each classroom once and spent several minutes getting oriented to the situation and obtaining a feel for the total atmosphere in which the teacher and pupils were working. Following this, about 20 to 30 minutes of classroom activity were categorized.

Ryans Classroom Observation Record

Description and rationale. An adapted form of the Ryans Classroom Observation Record (1960) was included in this assessment battery as another measure of observed teacher behavior to corroborate the data derived from the Flanders Interaction Analysis. Through the rating of student and teacher behaviors by trained observers on 15 dimensions such as "autocratic-democratic" and "harsh-kindly," several teacher patterns can be identified. These patterns supplemented the Flanders Interaction Analysis in considering non-verbal as well as verbal behaviors and in including the entire class period in the rating instead of just those segments amenable to verbal interaction analysis.

The Ryans format is particularly relevant for the study of student-centeredness in terms of its patterns of teacher behaviors, its behavioral definitions of each dimension, and its usability in the classroom. The original format was compiled after an extensive review of critical incidents in teaching, numerous uses of the format in schools at all grade levels and extensive factor analysis. The three principal patterns of teacher behavior (termed X, Y, Z) were described as follows:

Pattern X - the family of classroom behaviors defined by understanding, friendly behavior at one end of the continuum and aloof, egocentric, restricted behavior at the other

Pattern Y - teacher behavior defined as responsible, businesslike, systematic at one end of the continuum and evading, unplanned, slipshod at the other end

Pattern Z - teacher behavior defined as stimulating, imaginative, surgent at one end of the continuum and dull, routine at the other

Although all teacher behavior obviously does not fall into one of these three categories, it was believed that for this study the patterns were particularly significant and provided a measure similar to the Flanders direct-indirect ratio and yet different enough to be worthwhile. It was hypothesized that the student-centered teachers would score very high on the X pattern. Sample behaviors which loaded positively on this pattern were "encouraged pupil opinion," "exchanged ideas with pupils," "was tolerant of error on the part of the pupil," and "showed what appeared to be sincere sympathy with a pupil's viewpoint;" these behaviors coincided with qualities of student-centeredness described in Section I. Pattern Z - stimulating, imaginative - also appeared to be possibly related to student-centered teaching. Some specific behaviors typical of pattern Z were "took advantage of pupils' interests" and "tried new materials and methods." Even though these behaviors are not essential in a student-centered approach, in this study of the MACS curriculum and its teachers, this Z pattern of behavior seemed to be important.

The tentative hypotheses which the investigators formulated were based, in part, on some of Ryans' findings. Certain trends were observed which coincided with the interests of this research project. For example, teachers judged to be more warm and understanding (higher on pattern X) and also, though to a lesser degree, more stimulating (higher on pattern Z), expressed more permissive educational viewpoints; while teachers judged to be more businesslike (higher on pattern Y) showed a slight tendency to have more traditional points of view.

An adapted Ryans format, consisting of the 15 dimensions found to load on the three behavior patterns, was used in rating each of the teachers observed in this study. A minimum of 30 minutes of class observation was the basis of each rating.

Scoring. The teacher was rated on each dimension from 1 (low) to 7 (high) with "N" as "no opportunity for observation." A score for Pattern X was then obtained by averaging dimension ratings of autocratic-democratic, aloof-responsive, restricted - understanding, harsh-kindly, and pessimistic-optimistic. Pattern Y included the dimensions of obstructive-responsible pupil behavior, and evading-responsible, erratic-steady, excitable-poised, and disorganized-systematic teacher behaviors. The dull-stimulating and stereotyped-original teacher dimensions constituted Pattern Z.

Reliability. The observers were trained in the use of the observation record. An inter-rater reliability measure is easily obtained by the use of the product-moment correlation.

Informal Classroom Record and Checklist

In addition to the objective scores obtained with the Flanders and Ryans formats, the investigators were interested in recording their subjective impressions of the classroom interaction, keeping in mind the behavioral criteria that had been established, as well as the particular activities which made up the class period. Therefore, the observers wrote an informal description of the content and materials f each lesson observed and filled out several short checklists. These were concerned with classroom organization, types of activities, time sequence of activities, and objectives of the lesson (as they could be determined without consulting the teacher). Both the record and checklist were adapted from similar instruments used by EDC evaluators and together completed the classroom observation battery.

SECTION IV

RESULTS AND DISCUSSION

Each instrument will be discussed in terms of its contribution to a general battery of devices for assessing teacher behaviors and its particular relevance to M:ACS and student-centeredness. Data from the M:ACS and non-M:ACS samples of teachers will be presented as empirical support for these evaluations. Therefore, the questions guiding the interpretation of results were

1) To what degree can this instrument elicit behaviors and/or attitudes which range along the entire continuum of student- vs. teacher-centeredness?
2) To what degree are the responses elicited by this instrument "student-centered"?

Opinionaire - M:ACS

In designing the opinionaire, the investigators were primarily interested in two considerations: 1) obtaining reports of actual teacher and student classroom behaviors which would indicate the degree of student-centeredness of each particular M:ACS classroom, and 2) the extent to which problems with or accolades of M:ACS were related to a student-centered teaching approach. The responses of all the M:ACS teachers to the questions tapping these concerns were combined and categorized. To prevent any response from being overlooked, the categories were established on the basis of the responses themselves, and not according to the definition as set forth in this report.

The factual information on the 24 M:ACS teachers who returned the opinionaire is presented in Table 2. The answers to the questions regarding years of experience and method of recruitment permitted teachers to be divided into various subgroupings for comparison on several other instruments. The data presented in Table 3 represents the responses of these teachers to items seven through 12.

The responses to questions eight and ten, outlined in Table 3, closely coincided with the behaviors representative of a student-centered teaching approach, as defined in this report. The questions elicited not one but many responses from most teachers so that there was every indication that the teachers were able to express themselves freely, unfettered by leading questions referring specifically to "student-centeredness" or "discovery learning." A minority of the answers to questions seven and nine indicated no change in behavior, and these negative replies were elaborated upon in the answers to questions eight and ten. Since several teachers found it difficult to respond to an unqualified "yes" or "no" regarding behavioral changes, it is suggested that the category "to some degree" be added as an option in questions seven and nine. It should also be noted that although descriptive episodes were solicited, the majority of teachers responded to items eight and ten with non-descriptive general behaviors. Although these contributed essential data for the evaluation of the instrument and of the degree of student-centeredness exhibited,

TABLE 2

SUMMARY OF M:ACS TEACHERS' RESPONSES TO OPINIONAIRE QUESTIONS 1 THROUGH 6

1. Sex:

Male	13
Female	11

2. Level of education:

B.A. (or B.S.) certified	6
B.A. (or B.S.) not certified	0
B.A. (or B.S.) and 15 or more hours	9
M.A.	6
Other, e.g., M.A. plus hours	3

3. Major area of college study:

Elementary Education	14
Social Studies	1
Elementary and Social Studies	3
Education	2
Science	1
English	1
Curriculum	1

4. Years of teaching experience:

1-3	2
4-6	8
7-10	2
11-15	5
16-20	4
21 or more	3

5. Rating of subjects according to enjoyment scale (1=very enjoyable to 5=very unenjoyable)

	1	2	3	4	5
English	9	7	6	2	0
Mathematics	19	4	0	1	0
Reading	10	9	3	1	1
Science	9	9	2	2	2
Social Studies	21	3	0	0	0
Other, e.g., Art, etc.	3	2	0	1	0

6. Involvement in M:ACS

Volunteer	12
Asked	9
Chosen	1
Member of Campus Team	2

TABLE 3

SUMMARY OF M:ACS TEACHERS' RESPONSES TO OPINIONAIRE QUESTIONS 7 THROUGH 12

Question	Category of Response	Examples	f
7. Change in teaching methods	(a) Yes		21
	(b) No		4
8. Episode illustrating change	(a) Methodological techniques	Use of role playing; student observations; field trips; discovery	8
	(b) Role of teacher	Discussion guide; withdrawn observer; poser of questions	6
	(c) Classroom organization	Grouping, individualization; student-student discussions	5
	(d) Role of student	Increased participation--cognitive and affective	7
	(e) Classroom atmosphere	More open; less pressure	2
	(f) No change	Used discovery learning previously	4
9. Change in student behavior	(a) Yes		24
	(b) No		0
	(c) No response		1
10. Episode illustrating change	(a) Change due to materials	Students brought in books, pictures, etc.	5
	(b) Student participation	All students, high and low, participate.	6

TABLE 3. CONTINUED

Question	Category of Response	Examples	f
10. Continued	(c) Atmosphere changed	More relaxed, informal; use of personal experiences; no fear of failure; freer interaction.	5
	(d) Change in affective environment	More enjoyment, enthusiasm, interest.	6
	(e) Change in level of class discussion	In-depth challenging of ideas; questioning; analyzing; evaluating; sharing of observations.	3
	(f) Change in personal qualities	Students more independent, attentive, initiating, responsive.	1
	(g) No response		1
11. Problems a teacher might encounter in teaching M:ACS	(a) Problems related to the student-centered approach	For students--overcoming passivity and reliance on authority; self control; open-endedness. For teachers--acting as a discussion guide; grouping; coping with ambiguity of open-ended situations; posing thought-provoking questions.	16
	(b) Problems related to the M:ACS curriculum	Some topics too drawn out; not enough time on early units	6
	(c) Practical problems	Size of class; not enough copies of materials; amount of time necessary for outside reading; school situation; grading	5
	(d) None or insignificant		3

TABLE 3. CONTINUED

Question	Category of Response	Examples	f
12. Teaching of M:ACS next year?	(a) Yes		24
	(b) No		1
Reason	(a) Enjoyment of M:ACS	Variety of materials; subject matter; techniques	1
	(b) Support of principles of process approach		6
	(c) Support of importance of content		6
	(d) Teacher pleasure of observed student response on cognitive and/or affective level		6
	(e) Familiarity with the curriculum and/or techniques		3
	(f) Self-improvement		3
	(g) Replacement of other important social studies content (Not teaching next year)		1

it might be of interest for future investigators to subdivide these items- the first half asking the teachers to report the behaviors they manifested in the classroom; the second part duplicating items eight and ten as they appeared in the instrument. In this way, the teacher would have to resort to reporting descriptive episodes since he would have already responded in terms of general behaviors. The descriptive episodes should provide a more candid, revealing view of the classroom and would, therefore, be very interesting in any summary report about the nature of a M:ACS classroom.

Both questions 11 and 12, tapping problems and future involvement with M:ACS, elicited many responses dealing with a student-centered approach, suggesting that this method was woven into the curriculum and intimately related to it. In this sense, ERIE's expectation that teachers using M:ACS be student-centered appeared to be valid. The inclusion of these questions in the opinionaire would, therefore, seem justified.

After analyzing the responses to the non-M:ACS opinionaire (see Tables 4 and 5) it was recognized that no question tapping a general methodological approach had been included in the M:ACS opinionaire. The non-M:ACS teacher was asked to describe the teaching method typically used in his social studies class. Responses to this item were of a broad and general nature (for example, "a modified problem-solving approach"), instead of being specific (for example, "grouping"). Since it was important to assess the degree to

TABLE 4

SUMMARY OF NON-MACS TEACHERS' RESPONSES TO OPINIONAIRE QUESTIONS 1 THROUGH 5

1. Sex:

Male	4
Female	4

2. Level of education:

B.A. (or B.S.) certified	1
B.A. (or B.S.) not certified	1
B.A. (or B.S.) and 15 or more hours	4
M.A.	2
Other	0

3. Major area of college study:

Elementary Education	4
Social Studies	3
Elementary and History	1

4. Years of teaching experience:

1-3	2
4-6	2
7-10	0
11-15	1
16-20	0
21 or more	3

5. Rating of subjects according to enjoyment scale (1=very enjoyable to 5=very unenjoyable)

	1	2	3	4	5
English	1	3	2	1	0
Mathematics	3	3	2	0	0
Reading	1	6	1	0	0
Science	3	1	2	0	1
Social Studies	6	1	0	1	0
Other, e.g. Art	1	1	0	0	0

TABLE 5

SUMMARY OF NON-M:ACS TEACHERS' RESPONSES TO
OPINIONAIRE QUESTIONS 6 THROUGH 11

Question	Category of Response	Example	f
6. Description of teaching methods in social studies class	(a) Forms of discovery learning	Induction; project method; modified problem solving; unit plan	5
	(b) Forms of content-centered methods	Reading textbooks; lecture; discussion	3
7. Criteria of a good class	(a) Classroom organization	Objectives; presentation; lesson content	8
	(b) Student behavior	Enthusiasm; participation	6
	(c) Role of the teacher	Rapport with students; amount of individualization, motivator	6
	(d) Materials	Use of variety of materials; audio-visual aids	3
	(e) Classroom atmosphere	Freedom of students	1
	(f) Evaluation	Type of evaluation	1
8. Familiarity with concepts of discovery learning and/or student-centeredness	(a) Yes		8
	(b) No		0
Source of familiarity	(c) Other curricula	Science, math, social studies	6
	(d) No response		2

TABLE 5. CONTINUED

Question	Category of Response	Example	f
9. Familiarity with authors	Bruner	*Process of Education*	7
	Rogers		0
	Torrance		2
	Guilford		1
	McAllister		2
	Maslow		1
	Cramp		0
	Bloom	*Taxonomy*	5
	Parnes		1
	Skinner	*Programed Learning*	4
	Lippitt		2
10. Definition of student-centeredness	(a) Student's role	Individualization; child as the center of process; main concern--student	7
	(b) Teacher's role	Teacher does less talking	1
11. Dogmatic statement about student-centered learning	(a) Agree	"Children must be involved."	4
	(b) Agree with reservations	Dependent upon subject, situation and objectives	2
	(c) Disagree	Too inclusive; other methods of learning; too dogmatic	2

which the MtACS teachers' behaviors could be subsumed by a clear and specific methodology; this question merits inclusion in the MtACS opinionaire.

In sum, the responses to the opinionaire seemed relevant and covered a wide range of behaviors and attitudes. The investigators were satisfied with the clarity and provocative nature of the items.

In comparing the responses of the interview and opinionaire, much congruency was evident, indicating consistency of reported behaviors and attitudes which loaded heavily on student-centeredness, as defined in this report.

Social Studies Opinionnaire - Non-MtACS

The results of this opinionaire are presented in Tables 4 and 5. The description of teaching methods offered by the non-MtACS teachers was general in nature. Five of the eight teachers described some form of "discovery" or "student-centered" teaching; the others emphasized the different methods they used to deal with varied factual content.

The criteria given for a good lesson fell into much the same categories as did the responses of the MtACS teachers to this same item as it appeared in the interview format. However, there was not the high emphasis on student behaviors that was exhibited by the MtACS teachers. All the non-MtACS teachers were familiar with the concept of discovery learning (see results of semantic differential, Table 8 , for further support of this finding). Almost all were familiar with Bruner's work (especially The Process of Education) and with Bloom's Taxonomy.

In defining "student-centeredness," the non-M:ACS teachers offered fewer specific classroom techniques and expressed responses in terms of a philosophical view of the child and his role in the classroom.

The majority of non-M:ACS teachers disagreed with the "dogmatic" statement, stressing the idea that learning could occur under many teaching patterns.

On a whole, the responses of the non-M:ACS teachers seemed more general and unemotional. The M:ACS teachers responded with more specific references to personal classroom behaviors. Whether this was because they were exhibiting more student-centered behaviors than were the non-M:ACS teachers could not be ascertained with any degree of certainty. In addition, the effect of the in-service seminars for M:ACS teachers was probably to highlight the specific behaviors and attitudes desirable in a student-centered classroom. These then were uppermost in the teachers' minds and they would be more likely to mention them. Finally, specific behaviors may have been elicited in the interview as a result of probing - a feature absent in the opinionaire.

Thus, the responses to the non-M:ACS opinionaire suggested that the items in the M:ACS opinionaire and interview format were able to elicit a wide range of responses related to varied teaching techniques and attitudes. Use of these instruments in future investigations is, therefore, recommended.

Interview

In formulating the interview format, an attempt was made to tap reported classroom behaviors, attitudes toward student-centeredness, and teachers' cognitive command of the concept of student-centeredness. This final area was included because research (Oliver, 1953; McNassor, 1951 - cited in Gage, 1963) had revealed discrepancies between teachers' attitude scores and classroom behaviors. For example, elementary school teachers' responses to a checklist of educational beliefs were consistent with a modern educational philosophy, but classroom observations revealed that the beliefs were not put into practice. It was suggested that the teachers lacked a genuine understanding of the principles and the techniques with which to implement the philosophy.

Interviews with 20 MMACS teachers provided the data summarized in Table 6. The teachers' responses to each item (taken directly from the interview) were combined. The categories under which they were grouped were established through careful examination of the data so that no response would be overlooked in an attempt to group data according to preconceived designations.

From the general categories and examples, it could be seen that the responses elicited encompassed the gamut of classroom behaviors and attitudes. The categories of responses were heavily weighted toward student-centeredness, as it has been defined in this report. This indicated that the particular sample of MMACS teachers was exhibiting student-centered behaviors and attitudes, consistent with ERIE's

TABLE 6

INTERVIEW DATA

Question	Category of Response	Examples	f
1. What effects do you think teaching M:ACS has on a teacher?	(a) Role of the teacher	Learner; guide; less in control; less center of class	11
	(b) Content of lesson	Less emphasis on factual material; relevance	7
	(c) Student behaviors	Participation; interest; interaction; critical thinking; spontaneity	6
	(d) Classroom organization and procedures	Open-ended teaching; grouping; individualized work; activity-oriented; process approach	3
	(e) Classroom atmosphere	Relaxed; spontaneous; liberal	2
	(f) Attitude change	Less aloof; more respect for lower students	2
	(g) Materials	Plentiful	2
	(h) No change	Used techniques before	1
	(i) Negative assessment	Limiting; narrow; repetitious	1
2. If you were asked to observe someone else's classroom, what criteria would you use to decide whether it was a good lesson?	(a) Student behaviors	Interest; attention; challenging of ideas; participation	15
	(b) Classroom organization and procedures	Objectives; presentation; lesson content; interest level; range of activities; unpredictable procedure; planning	10

TABLE 6. CONTINUED

Question	Category of Response	Examples	f
2. Continued	(c) Role of the teacher	Guide; reference person; discussion leader; no domination; establishes rapport with students	6
	(d) Materials	Relevant; available	4
	(e) Classroom atmosphere	Freedom within limits; lack of pressure; optimal noise level	2
3. Before exposure to M:ACS, had you come across the concepts of "discovery learning" or "student-centered teaching"?	(a) Other curricula	Science; mathematics	9
	(b) College courses		3
	(c) Reading	Bruner	2
	(d) Other people	Principal; teachers	1
	(e) Own teaching experience		1
4. From your reading and association with M:ACS, how would you describe student-centeredness?	(a) Role of the student	Focal point of attention; active involvement; student-student interaction; inquiry	12
	(b) Role of the teacher	Guide; sensitive to child's needs and interests; moderate; probe	5
	(c) Classroom orientation and procedures	Grouping; individualization of instruction; less concern with subject matter; varied approaches to problems; emphasis on cognitive skills (e.g. reading, observing, inferring, judging)	2
	(d) Classroom atmosphere	High interest level (shown by noise movement, library visits); no absolutes	2

TABLE 6. CONTINUED

Question	Category of Response	Examples	f
5. One of my professors, who is particularly dogmatic in his statements, has said that a student-centered classroom is the only one where true learning can occur. From your experience, how would you respond to this claim?	(a) Basic agreement	Stress on connection between school work and interests so that learning "takes"; learning more meaningful through discovery	6
	(b) Agreement with reservations	Stress on need for direction, proper guidance, leading questions, goals; mentioned practical problems of size, materials, intellectual capacity of students	3
	(c) Disagreement	Learning depends upon child, subject matter, class, definition of student-centeredness; much learning in traditional classrooms; still room for lecturing; no one knows where learning takes place best	7
6. If you were introducing M:ACS as a new curriculum in your school, how would you recruit teachers?	(a) Teacher's educational views and practices as basis for selection	Philosophy of education; type of classroom (teacher/student centered), observed behavior in class (e.g. not threatened by student participation, permit noise, don't demand high degree of structure or discipline, willing to experiment)	10
	(b) Personality characteristics	Liberal (open attitude toward all matters); like change; feeling for children and people in general; relaxed; curious; creative; bright; competent; flexible; interested	10
	(c) Utilize curriculum	Present curriculum and allow interested parties to volunteer; show films, display children's work; workshops; classroom observation	3

NOTE: See Appendix C for specific quotes related to interview items.

expectation (or was at least reporting to do so). The fact that the teachers seemed to have a cognitive grasp of the concept might have helped to account for the consistency between responses related to attitudes and behaviors, although this consistency might evaporate when reported behaviors are subjected to direct observation.

It is important to note that a small sample of responses to the items did not support or reflect a student-centered teaching approach. This is of particular import, as the instrument must be able to elicit responses situated anywhere along the teacher-vs. student-centered continuum in order to assess the degree of student-centeredness exhibited by a particular sample of teachers.

Since the non-M:ACS teachers were not interviewed, their opinionaire (as mentioned above) included several questions from the interview format. These elicited a combination of student-centered and teacher-centered responses (see Table 5). For example, some criteria for a good lesson were pupil involvement, teacher skill in use of textbook, content of lesson in relation to topic, group work, rapport with students, attention to individual differences, etc. -- responses which varied in position along the teacher-vs. student-centered continuum. The instrument, then, was evaluated favorably in terms of its ability to elicit qualitatively different responses and in terms of the opportunity it afforded the teachers to report their student-centered behaviors and attitudes.

With regard to the usability of the interview format, it should be noted that teachers appeared comfortable with the questions and stimulated by them. Many expressed pleasure at having the opportunity to discuss their classroom behaviors, their particular reactions to M:ACS, and their suggestions for recruitment procedures for the future. The personal contact that the interview permitted seemed to be one of its major strengths. The teachers seemed eager to talk with interested evaluators about the curriculum and its effects on their classrooms. It was noted above that the questions in the interview format were able to elicit clear and concise written responses, should direct interviewing be impossible. However, the opportunity to probe increases the likelihood of obtaining relevant and meaningful data -- a strength which a written opinionaire lacks.

Draw-a-Classroom

The Draw-a-Classroom technique was included in the assessment battery as a projective device designed to elicit a pictorial representation of teacher behaviors. It was hypothesized that the pictures drawn by the M:ACS teachers would reflect a variety of classroom organizations, focusing on group activities with the teacher as a guide. Nineteen M:ACS and eight non-M:ACS teachers, using diagrams, stick figures, collages, and elaborate art work, drew classroom scenes (see Appendix C for the drawings submitted). In general, the M:ACS teachers' drawings were more elaborate and detailed than those of the non-M:ACS teachers. Although no teacher in either group drew a classroom with the children seated in rows and the teacher lecturing, a wide range of organizations were represented by both sample groups. The majority of pictures depicted many small groups working on various projects, with several pictures also including students working alone on individual projects.

Seven of the M:ACS and two of the non-M:ACS pictures portrayed the teacher as an integral part of a small group. Ten M:ACS teachers showed the teacher moving from group to group, providing help and encouragement (this was indicated by the teachers in marginal notes); one of the non-M:ACS teachers placed the teacher in this role. A great number of materials - books, blackboard diagrams, games, art projects, film projectors - were drawn in detail by the M:ACS teachers.

Because of the small size of the non-M:ACS sample responding to this instrument, there seemed to be no basis for drawing further comparisons or formulating conclusions. The drawings, although very interesting, did not appear to differentiate teachers on their degree of student-centeredness. Despite this, the investigators would include the test in the battery. If administered to a large enough sample, it could provide supporting evidence for written, oral, and observed responses, by virtue of its unobtrusive nature. Finally, the technique provides diversion for both the participant and the investigator.

Dogmatism Scale

Twenty-four M:ACS and eight non-M:ACS teachers returned their opinionaires, so that the data on the Dogmatism Scale reflected these sample sizes. A comparison of M:ACS and non-M:ACS teachers on this instrument revealed no significant difference (see Table 7), nor was any difference found between the M:ACS subgroups divided on the basis of experience (see Table 10). However, in comparing the subgroupings of volunteers and non-volunteers within the M:ACS sample, the volunteers (see Table 9) were significantly less dogmatic ($p < .005$). This finding suggested that the less dogmatic person may volunteer more readily for new experiences. Because of its stress on open-endedness of teaching techniques and/or its novel content, the M:ACS curriculum may have attracted those teachers who were flexible and open to change.

Despite the results described above, the volunteers (see Table 9) were not significantly more indirect than the non-volunteers, according to Flanders' measure of indirectness (I/D ratio). Thus, open-mindedness as measured by the Dogmatism Scale was not necessarily reflected in performance. This point was confirmed through a comparison of indirect and direct teachers (using Flanders' I/D ratio) on their dogmatism scores -- the direct teachers were found to be less dogmatic, though not significantly so (see Table 11).

In comparing the samples in this study with those used as norm groups in Rokeach's research, both the M:ACS and non-M:ACS teachers scored near or below the means of most of the norm groups, consisting mainly of college students. In this sense, the scores fell within a reasonable and expected range. However, despite the hypotheses delineated in the

TABLE 7

SUMMARY OF COMPARISONS OF M:ACS and NON-M:ACS SAMPLES ON FLANDERS, RYANS, CHECKLIST AND DOGMATISM

Test	M:ACS	Non-M:ACS	t	Significance
Flanders				
a. I/D	n = 12 $\bar{x}$ = .56 s = .18	n = 10 $\bar{x}$ = .48 s = .18	0.99	n.s.
b. Teacher Talk	n = 12 $\bar{x}$ = .58 s = .17	n = 10 $\bar{x}$ = .66 s = .12	-1.19	n.s.
c. Teacher Talk Direct	n = 12 $\bar{x}$ = .46 s = .17	n = 10 $\bar{x}$ = .53 s = .20	-0.85	n.s.
d. Student Talk	n = 12 $\bar{x}$ = .42 s = .17	n = 10 $\bar{x}$ = .34 s = .12	1.04	n.s.
e. Student Talk teacher-solicited	n = 12 $\bar{x}$ = .28 s = .28	n = 10 $\bar{x}$ = .47 s = .32	-1.42	n.s.
f. Student Talk student-initiated	n = 12 $\bar{x}$ = .72 s = .28	n = 10 $\bar{x}$ = .53 s = .32	1.42	n.s.
Ryans				
a. Pattern X	n = 14 $\bar{x}$ = 5.84 s = 1.06	n = 9 $\bar{x}$ = 5.04 s = 1.50	1.43	n.s.
b. Pattern Y	n = 14 $\bar{x}$ = 5.94 s = .97	n = 9 $\bar{x}$ = 6.31 s = .69	-2.10	$p \leq .025$
c. Pattern Z	n = 14 $\bar{x}$ = 5.32 s = 1.32	n = 9 $\bar{x}$ = 3.72 s = 1.60	2.49	$p \leq .025$
Checklist				
Number of activities	n = 14 $\bar{x}$ = 4.07 s = 1.87	n = 9 $\bar{x}$ = 2.78 s = 1.55	1.64	n.s.
Dogmatism Scale	n = 24 $\bar{x}$ = 134.6 s = 32.3	n = 8 $\bar{x}$ = 123.6 s = 31.8	0.81	n.s.

TABLE 8

SUMMARY COMPARISONS OF M:ACS AND NON-M:ACS SAMPLES ON SEMANTIC DIFFERENTIAL

	M:ACS (N=24)	Non-M:ACS (N=8)	t	Significance
I. Evaluative Factor				
A. Discovery Learning	$\bar{x} = 4.58$ $s = .28$	$\bar{x} = 4.35$ $s = .30$	1.91	p .05
B. Student-Student Interaction	$\bar{x} = 4.36$ $s = .36$	$\bar{x} = 3.98$ $s = .23$	2.71	$p < .01$
C. Ambiguity	$\bar{x} = 2.93$ $s = .70$	$\bar{x} = 2.60$ $s = .49$	1.20	n.s.
D. Student Initiative in the classroom	$\bar{x} = 4.47$ $s = .47$	$\bar{x} = 4.00$ $s = .60$	2.20	$p < .025$
E. Teacher as Transmitter of Knowledge	$\bar{x} = 3.03$ $s = 1.20$	$\bar{x} = 2.98$ $s = .64$	0.11	n.s.
II. Activity Factor				
A. Discovery Learning	$\bar{x} = 3.92$ $s = .72$	$\bar{x} = 3.50$ $s = .43$	1.51	n.s.
B. Student-Student Interaction	$\bar{x} = 4.17$ $s = .64$	$\bar{x} = 3.69$ $s = .66$	1.76	$p < .05$
C. Ambiguity	$\bar{x} = 3.10$ $s = .92$	$\bar{x} = 3.00$ $s = .71$	0.27	n.s.
D. Student Initiative in the classroom	$\bar{x} = 3.85$ $s = .90$	$\bar{x} = 3.88$ $s = .48$	-0.09	n.s.
E. Teacher as Transmitter of Knowledge	$\bar{x} = 3.27$ $s = 1.00$	$\bar{x} = 2.69$ $s = 1.00$	1.38	n.s.
III. Novelty Factor				
A. Discovery Learning	$\bar{x} = 2.71$ $s = .95$	$\bar{x} = 2.69$ $s = .61$	0.05	n.s.
B. Student-Student Interaction	$\bar{x} = 1.98$ $s = .70$	$\bar{x} = 2.38$ $s = .78$	-1.32	n.s.

TABLE 8. CONTINUED

	M:ACS (N=24)	Non-M:ACS (N=8)	t	Significance
C. Ambiguity	$\overline{x}$ = 2.60 s = .90	$\overline{x}$ = 3.00 s = .50	1.16	n.s.
D. Student Initiative in the classroom	$\overline{x}$ = 2.31 s = 1.09	$\overline{x}$ = 2.31 s = .97	0	n.s.
E. Teacher as Transmitter of Knowledge	$\overline{x}$ = 2.00 s = .88	$\overline{x}$ = 2.06 s = 1.16	-0.15	n.s.

TABLE 9

SUMMARY OF COMPARISONS OF VOLUNTEERS AND NON-VOLUNTEERS WITH MINACS SAMPLE

Test	Volunteers	Non-Volunteers	t	Significance
Flanders				
a. I/D	$n = 4$ $\bar{x} = .64$ $s = .15$	$n = 5$ $\bar{x} = .52$ $s = .20$	0.86	n.s.
b. Teacher Talk	$n = 4$ $\bar{x} = .38$ $s = .03$	$n = 5$ $\bar{x} = .73$ $s = .11$	-5.45	$p < .005$
c. Teacher Talk Direct	$n = 4$ $\bar{x} = .36$ $s = .18$	$n = 5$ $\bar{x} = .52$ $s = .15$	-1.28	n.s.
d. Student Talk	$n = 4$ $\bar{x} = .62$ $s = .03$	$n = 5$ $\bar{x} = .27$ $s = .11$	5.45	$p < .005$
Ryans				
a. Pattern X	$n = 5$ $\bar{x} = 6.36$ $s = .69$	$n = 6$ $\bar{x} = 5.37$ $s = 1.25$	1.43	n.s.
b. Pattern Y	$n = 5$ $\bar{x} = 6.44$ $s = .23$	$n = 6$ $\bar{x} = 5.90$ $s = .89$	1.19	n.s.
c. Pattern Z	$n = 5$ $\bar{x} = 6.00$ $s = .89$	$n = 6$ $\bar{x} = 4.58$ $s = 1.27$	1.90	$p < .05$
Dogmatism Scale	$n = 5$ $\bar{x} = 121.00$ $s = 15.70$	$n = 6$ $\bar{x} = 151.70$ $s = 37.00$	-7.71	$p < .005$

TABLE 10

SUMMARY OF COMPARISONS OF [illegible] SUBGROUPS DIVIDED ON BASIS OF YEARS OF EXPERIENCE

Test	1-6 Years	11-21+ Years	t	Significance
Flanders				
a. I/D	n = 7 $\bar{x}$ = .57 s = .19	n = 3 $\bar{x}$ = .50 s = .03	0.57	n.s.
b. Teacher Talk	n = 7 $\bar{x}$ = .58 s = .17	n = 3 $\bar{x}$ = .53 s = .21	0.35	n.s.
c. Teacher Talk Direct	n = 7 $\bar{x}$ = .36 s = .18	n = 3 $\bar{x}$ = .52 s = .15	-0.69	n.s.
d. Student Talk	n = 7 $\bar{x}$ = .42 s = .17	n = 3 $\bar{x}$ = .47 s = .21	-0.35	n.s.
Ryans				
a. Pattern X	n = 7 $\bar{x}$ = 6.03 s = .41	n = 5 $\bar{x}$ = 5.52 s = 1.58	0.75	n.s.
b. Pattern Y	n = 7 $\bar{x}$ = 6.29 s = .54	n = 5 $\bar{x}$ = 5.92 s = .66	0.97	n.s.
c. Pattern Z	n = 7 $\bar{x}$ = 5.71 s = .88	n = 5 $\bar{x}$ = 4.70 s = 1.50	1.33	n.s.
Dogmatism Scale	n = 6 $\bar{x}$ = 134.67 s = 27.70	n = 5 $\bar{x}$ = 141.40 s = 38.20	-0.31	n.s.

TABLE 11

SUMMARY OF COMPARISONS OF HIGH I/D AND LOW I/D GROUPS ACROSS *M:ACS* AND NON-*M:ACS* SAMPLES

Test	High I/D	Low I/D	t	Significance
Ryans				
a. Pattern X	$\underline{n} = 10$ $\bar{x} = 5.62$ $s = 1.39$	$\underline{n} = 13$ $\bar{x} = 5.46$ $s = 1.35$	0.27	n.s.
b. Pattern Y	$\underline{n} = 10$ $\bar{x} = 5.64$ $s = 1.28$	$\underline{n} = 13$ $\bar{x} = 6.43$ $s = .52$	-1.92	$p < .05$
c. Pattern Z	$n = 10$ $\bar{x} = 5.00$ $s = 1.72$	$n = 13$ $\bar{x} = 4.46$ $s = 1.66$	0.73	n.s.
Checklist				
Number of activities	$n = 10$ $\bar{x} = 4.7$ $s = 2.06$	$n = 13$ $\bar{x} = 2.69$ $s = 1.25$	2.76	$p < .01$
Dogmatism Scale	$n = 7$ $\bar{x} = 140.5$ $s = 25.05$	$n = 7$ $\bar{x} = 112.5$ $s = 34.73$	1.60	n.s.

rationale for the use of this instrument, the results were contrary to expectation. The direct teachers (as measured by Flanders' I/D ratio) were lower in dogmatism than the indirect teachers. This finding, however, was not statistically significant and may have no practical significance, as neither group fell on the closed-minded end of the continuum. In this sense, the degree of open-mindedness may bear no direct relation to the degree of indirectness exhibited in the classroom.

In sum, the test did not seem to have much use for the samples tested in this study. However, it might be useful in tapping the ERIE expectation that teachers adopt attitudes favorable to nondirectiveness if measures taken before and after exposure to MiACS reflect a change in degree of open-mindedness.

Semantic Differential

As stated in the rationale (Section III), the semantic differential was selected as a measure of attitude toward student-centeredness. Twenty-four MiACS and eight non-MiACS teachers rated five concepts relevant to student-centered teaching. Three factors - evaluation, novelty, and activity - were considered to be of particular interest in this study, and thus scales loading on each of these factors were included. However, it was decided that the five scales, originally selected because of their high loading on the factor of evaluation, be the major focus of this analysis. According to Osgood et al. (1957), these scales are more clear-cut in their loading than are those loading on the factors of activity and novelty.

In comparing the M:ACS and non-M:ACS samples across their evaluation of each concept, it was found that the M:ACS teachers were significantly more positive in evaluating "learning by discovery" ($p \leq .05$), "student-student interaction" ($p \leq .01$), and "student initiative in the classroom" ($p \leq .05$) — the three concepts most germane to student-centeredness. The mean scores on these ratings were 4.6, 4.4, and 4.5 respectively (using a five-point scale), indicating very positive evaluation (see Table 8).

Neither the concept of "ambiguity" nor of "teacher as transmitter of knowledge" was rated significantly different by the two groups. The fact that the mean evaluation scores for these concepts clustered about the neutral point of three suggested an inappropriateness of scale-concept pairing. In addition, comments by many of the teachers indicated confusion in the rating of these particular concepts, so that little valuable information was gleaned through their use. The investigators would, therefore, recommend the elimination of these two concepts from the instrument in the future.

Ratings by both groups of teachers (M:ACS vs. non-M:ACS) on the novelty of all five concepts were on the low end of the scales. It would seem that the concepts were not novel to either group of teachers, despite the hypothesis that the non-M:ACS teachers would be less familiar with them. In other words, both groups knew about these concepts, whether or not they utilized them in their classroom behavior. This familiarity with the concepts of student-centeredness was supported by the responses of the M:ACS and non-M:ACS teachers to many opinionaire and interview items (see Tables 3 and 5).

In rating the concepts along the activity scales, the M:ACS teachers rated "student-student interaction" as significantly more active than did the non-M:ACS teachers ($p \leq .05$). The other ratings were not significantly different, with many clustered about the neutral point of three, again suggesting inappropriate scale-concept pairing. The investigators were not satisfied that the scales chosen as loading on activity were sufficiently independent of other factor loadings; however, the results as they are presented in Table 8., indicated that the remaining four concepts appeared either indifferently or just slightly active to both the M:ACS and non-M:ACS teachers.

In sum, the semantic differential seemed to be of greatest value as a generalized attitude scale. The careful selection of concepts and scales, with an eye to the particular research objectives, permits the tapping of attitudes to concepts which are considered of particular relevance; others of little or no interest may be omitted. This is a major strength of the semantic differential - one which is lacking in most standardized attitude questionnaires.

Flanders System of Interaction Analysis

The use of the Flanders Interaction Analysis permitted the investigators to determine for each teacher a general level of directness or indirectness (defined by Flanders in terms of the degree of freedom afforded the student).

Flanders, in his discussion of the analysis technique, reported that 70 per cent of a large sample of teachers displayed predominantly direct behavior with "predominantly direct" being defined as an I/D ratio of less than .50. The teachers of the non-HiACS sample exhibited precisely this percentage--70 per cent below .50, 30 per cent above. The scores of the HiACS sample, however, were reversed -- 33 per cent below the .50 level and 67 per cent above.

Besides the general I/D ratio, Flanders also developed a "two-thirds rule" concerning verbal behavior. He found that in an average classroom someone is talking two-thirds of the time. Of this two-thirds, 44 per cent is teacher talk, and 30 per cent of this talk is direct (or limiting the child's freedom). Student talk in the average classroom then comprises about 24 per cent of the total verbal behavior; of this student talk, 16 per cent is teacher-solicited and 8 per cent is student-initiated. Note that Flanders' 67 per cent was based on five types of classroom activity. In all the classrooms observed in the present study only discussion periods were categorized and consequently the percentage of verbal behavior was much higher. The investigators calculated the percentages of teacher and student talk on the basis of total verbal behavior in each classroom. The expected values (according to the modification of Flanders), therefore, were 67 per cent for teacher talk, of which 45 per cent should be direct influence. Student talk should then comprise 33 per cent of the total verbal behavior, with 22 per cent teacher-solicited and 11 per cent student-initiated.

In comparing the M:ACS and the non-M:ACS samples, it was found that two-thirds of the M:ACS teachers scored below the 67 per cent level of expected teacher talk while one-half of the non-M:ACS sample fell into this category. The percentage of teachers scoring below the expected 45 per cent level of direct influence was 85 per cent in the M:ACS sample and 90 per cent in the non-M:ACS sample, with the mean per cent of direct influence lower among the M:ACS than among the non-M:ACS teachers.

In the M:ACS sample, two-thirds of the observed classrooms exhibited more than the 33 per cent expected level of student talk while one-half of the non-M:ACS classrooms fell into this category. Eighty-seven per cent of the M:ACS classrooms sampled exhibited student-initiated talk above the expected 11 per cent level; 60 per cent of the non-M:ACS classrooms scored likewise.

In a comparison of the M:ACS subgroups, teachers who volunteered (see Table 9) were found to talk significantly less than those teachers who were asked to teach M:ACS ($p \leq .005$). There was, however, no significant difference in the I/D scores of these two groups. Also, no significant differences were found in any of the Flanders scores between subgroups based on years of teaching experience.

Other subscores -- extended indirect influence, extended direct influence, teacher response to student comments, and student talk following teacher talk -- were calculated and appear as base data in Appendix J. Although interesting and of value in studying the specifics of classroom interaction, these scores were not considered important in the discussion of the applicability of the Flanders system in this test battery.

During each classroom observation, the observers subjectively evaluated the teacher according to the criteria of student -centeredness proposed in this report. After analyzing the Flanders data, these subjective evaluations were compared to the I/D ratio. There was judgmental agreement between the high I/D ratios and positive rater evaluations of student-centeredness. From these informal observations and from the results of the N:ACS and non-N:ACS teachers' scores on various measures in the Flanders Analysis, it was concluded that the Flanders Interaction Analysis technique is a satisfactory instrument for the evaluation of student-centeredness if the teachers are observed several times during the year and if an informal checklist of classroom organization supplements the Flanders format.

Ryans Classroom Observation Record

In comparing the N:ACS and non-N:ACS samples on the three patterns of teacher behaviors delineated in the Ryans study, a trend was discovered that conformed to the expectation as set forth in the rationale for the use of the instrument. The results (see Table 7) showed that the N:ACS teachers were higher on Pattern X-warm, friendly, understanding, higher on Pattern Z - stimulating, original ($p \leq .025$), and lower on

Pattern Y - businesslike, responsible, systematic ($p \leq .025$). In combining the MIACS and non-MIACS teachers and comparing those judged to be indirect with those assessed as direct (using Flanders' I/D ratio), the same trend was exhibited. The indirect teachers were higher on Patterns X and Z and lower on Pattern Y - the last significant at the .05 level (see Table 11).

In comparing the MIACS subgroups, the volunteers (see Table 9) were found to be higher on Patterns X and Y and significantly higher on Pattern Z ($p \leq .05$). No significant differences were found between MIACS teachers differentiated on the basis of years of teaching experience.

The Ryans format was useful, therefore, as an instrument for observing teachers in any classroom setting and was a valuable supplement to the Flanders system in that it covered the gamut of classroom time and activity. The glossary accompanying the observation record was particularly useful in yielding consistent ratings of the teachers, and the descriptive behaviors advanced by Ryans to describe Patterns X and Z coincided with many of the exemplar behaviors contained in the definition of student-centeredness proposed in this report.

Because it was applicable in observing a wide range of classroom interactions and be[illegible] it seemed capable of differentiating somewhat between teachers judged to be student- or teacher-centered on the basis of other criteria, this instrument merited inclusion in the evaluative battery.

Informal Classroom Record and Checklist

The classroom checklist yielded information of particular relevance to this study. The MACS classroom had an average of 4.07 activities during the observation period, as compared with 2.97 in the non-MACS classrooms; and the MACS teachers utilized grouping techniques to a greater degree. Since the MACS curriculum purported to allow for varied activities and grouping arrangements, and since multiple activities and grouping techniques were characteristic of student-centeredness in that they allow for individualization of instruction, this finding was of major import.

In assessing the objectives of the teachers (as far as these could be determined from observation alone), the observers rated 81 per cent of the MACS teachers as attempting to emphasize concepts, with a few of these having interpersonal behavior as an additional observable goal. Only one of the non-MACS teachers seemed to have interpersonal behavior as an observable goal, with an additional emphasis on research skills. The acquisition of information was rated as a major objective for only 13 per cent of the MACS teachers, and 89 per cent of the non-MACS teachers. According to Bloom (1956), the majority of the non-MACS teachers were stressing "knowledge of specifics," while the MACS teachers stressed "knowledge of the universals and abstractions in a field" - the highest level of abstraction and complexity. The MACS teachers, then, were stressing goals congruent with those established by the course designers.

In comparing the indirect and direct teachers across both samples, the indirect teachers (see Table 11) were found to utilize a significantly greater number of activities than the direct teachers ($p \leq .01$).

Thus, the checklist seemed to be a useful instrument for differentiating teachers on the bases of number of activities and of grouping techniques used in these activities - an important element in student-centeredness. The checklist was easy to use in a classroom situation and yielded information of major relevance to a study of student-centered teaching behaviors and objectives.

Summary

The following instruments are recommended for use in future evaluation of teacher behaviors and attitudes in the Man: A Course of Study curriculum:

M:ACS Opinionaire
Interview Format
Flanders Interaction Analysis System
Ryans Classroom Observation Record
Classroom Checklist
Semantic Differential
Draw-a-Classroom

At this point, the major limitations of the procedure will be summarized in order to optimize the possibility of efficiently using the battery in the future.

The investigators were forced to qualify their assessment of most of the instruments due to the size of the sample tested. Twenty-four M:ACS teachers returned the opinionaire, 20 were interviewed and 12 observed. Since the same teachers who returned the opinionaire were not necessarily observed and/or interviewed, a complete set of scores (opinionaire packet, interview, and observation) was obtained for ten *M:ACS* teachers. The remaining scores were based on observations of and returns from different teachers. The same was true for the non-*M:ACS* sample, where ten teachers were observed and eight opinionaires returned.

It is important to note that the emphasis in this study was on the construction and evaluation of the instrument battery. As no pre-measures were taken on the teachers and no randomization performed in placing *M:ACS* and non-*M:ACS* teachers in their respective groups, the comparison group could in no way be considered a valid control group. Thus, the measures taken on the two groups were less important as indices of statistically significant differences in behaviors and attitudes, but instead, of prime value in determining the degree to which both groups could respond to the instruments qua instruments. For this reason, when certain instruments were seen to lend themselves to more detailed analysis of interest in subsequent research, the scores obtained on these specific measures were generally included in Appendix B, to provide base line data for future reference.

It was also recognized that the use of an opinionaire and an interview format placed great reliance on subjective responses. However, the investigators were encouraged by the consistency of reported and observed behaviors exhibited by the teachers.

A final point must be mentioned regarding the observation schedule used in this study. The data on the observation instruments were based on one observation per teacher since this was all that time allowed. For this reason, it was likely that the sample of behaviors observed and rated was not necessarily typical of the teacher's overall classroom behavior. Thus, it is recommended that measures taken before and after exposure to the M:ACS curriculum be based on periodic visits and repeated observations - this to increase the likelihood of obtaining a valid sampling of teacher behaviors and attitudes and of increasing the reliability of the rating.

In sum, therefore, the instruments delineated above, if used in a carefully designed experiment, seem to constitute a promising battery for assessing the degree to which teachers adopt student-centered behaviors and attitudes as a result of teaching the Man: A Course of Study curriculum.

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APPENDIX A

INSTRUMENTS

M:ACS OPINIONAIRE

April 6, 1970

Dear

We are interested in obtaining some evaluative data concerning the teaching of Man: A Course of Study. Undoubtedly your campus director has informed you of the role of Cornell's research team in the final evaluative process.

Enclosed is a document that we would like you to complete. You, as the teacher, are the final authority on Man: A Course of Study; and so, your help with this project will be invaluable. It should take you approximately one hour to answer the questions. Please return the document in the enclosed, self-addressed envelope by April 21.

Thank you for your time and cooperation.

Sincerely yours,

Richard E. Ripple

Richard E. Ripple

Susan Dalfen

Susan Dalfen

Sue Deffenbaugh

Sue Deffenbaugh

PART 1

TEACHER OPINIONAIRE

Man: A Course of Study

Directions:

The following questionnaire is part of the evaluation of the Man: A Course of Study curriculum. Since you, as the teacher, are essential to the success of any curriculum, we would like to obtain your opinions on certain issues. Please fill out the following questionnaire and attached sheets as carefully as possible and return it in the enclosed, self-addressed stamped envelope by April 21.

The information will be used by the Cornell research team and kept strictly confidential. All data will be used in group form without reference to specific names or schools.

1. Sex: M F (circle answer)

2. Level of education: (circle answer)

   B.A. (or B.S.) certified
   B.A. (or B.S.) not certified
   B.A. (or B.S.) and 15 or more hours
   M.A. (or M.S.)
   Other ____________________________

3. Major area of college study ____

4. Years of teaching experience: (circle answer)

1 - 3	16 - 20
4 - 6	21 or more
7 - 10	Other __________
11 - 15	

5. Please rate the subjects listed below according to how much you enjoy teaching them. Use the following scale: 1 = very enjoyable, 2 = moderately enjoyable, 3 = neutral, 4 - moderately unenjoyable, 5 = very unenjoyable. For example, if teaching Reading is moderately enjoyable for you, you would rate Reading as 2.

_____English	_____Science
_____Mathematics	_____Social Studies
_____Reading	_____Other (please specify) ____________

6. How did you become involved in teaching M:ACS? ______________________________

____

____

____

____

7. Do your teaching methods in M:ACS differ from those you used in your social studies class last year?

_____YES _____NO

8. If you can provide a descriptive classroom episode that illustrates your response to question #7, it would be most helpful. ______________________

____

____

____

____

9. Do your pupils behave differently in M:ACS than they did in your social studies class last year?

_____YES _____NO

10. If you can provide a descriptive classroom episode that illustrates your response to the previous question, it would be most helpful.

____

____

____

____

11. If you were asked by a new M:ACS teacher which problems he or she would likely encounter in teaching the curriculum, what would you reply?

____

____

____

____

____

12. If you are given a choice, will you teach M:ACS next year? ____YES ____NO
Why or why not?

____

____

____

13. Draw a picture of a teacher with a class. Draw as complete a picture as you can. Avoid the use of stick figures. Don't worry about your artistic ability or lack of it; just draw as well as you can.

NON-M:ACS OPINIONAIRE

April 14, 1970

Dear Teacher:

We are interested in obtaining some evaluative data concerning the teaching of social studies in the elementary schools. This research is being conducted by members of the Department of Education at Cornell University and is sponsored by the Eastern Regional Institute for Education at Syracuse.

Enclosed is a document that we would like you to complete. You, as the teacher, are the final authority on the topic; and so, your help with this project will be invaluable. It should take you approximately one hour to answer the questions. Please return the document in the enclosed, self-addressed envelope within the next few days.

Thank you very much for your time and cooperation.

Sincerely,

Richard E. Ripple

Susan Dalfen

Susan Dalfen

Sue Deffenbaugh

Sue Deffenbaugh

PART 1

TEACHER OPINIONAIRE

Social Studies Curriculum

Directions:

The following questionnaire is part of the evaluation of the Social Studies curriculum. Since you, as the teacher, are essential to the success of any curriculum, we would like to obtain your opinions on certain issues. Please fill out the following questionnaire and attached sheets as carefully as possible and return it in the enclosed, self-addressed stamped envelope within the next few days.

The information will be used by the Cornell research team and kept strictly confidential. All data will be used in group form without reference to specific names or schools.

1. Sex: M F (circle answer)

2. Level of education: (circle answer)

B.A. (or B.S.) certified
B.A. (or B.S.) not certified
B.A. (or B.S.) and 15 or more hours
M.A. (or M.S.)
Other ____________________________

3. Major area of College study ____

4. Years of teaching experience: (circle answer)

1 - 3	16 - 20
4 - 6	21 or more
7 - 10	Other
11 - 15	

5. Please rate the subjects listed below according to how much you enjoy teaching them. Use the following scale: 1 = very enjoyable, 2 = moderately enjoyable, 3 = neutral, 4 = moderately unenjoyable, 5 = very unenjoyable. For example, if teaching reading is moderately enjoyable for you, you would rate reading as 2.

______ English	______ Science
______ Mathematics	______ Social Studies
______ Reading	______ Other (please specify) _______

6. If you can, please describe the teaching method you typically use in your social studies class. Consider the role of both students and teacher as well as the materials and resources you employ.

7. If you were asked to observe someone else's classroom, what criteria would you use to decide whether it was a good lesson? Consider such things as teacher actions, student actions, etc.

8. Have you ever come across the concepts of "discovery learning" or "student-centered teaching"? If so, in what context?

9. Which of the following authors are you familiar with? Please indicate by placing a checkmark before their names and where possible, list their works which you have read.

Titles

_____J. Bruner ______________________________

_____C. Rogers ______________________________

_____E. P. Torrance ______________________________

_____J. P. Guilford ______________________________

_____J. McAllister ______________________________

_____A. Maslow ______________________________

_____R. Cramp ______________________________

_____B. S. Bloom ______________________________

_____S. J. Parnes ______________________________

_____B. F. Skinner ______________________________

_____R. Lippitt ______________________________

10. From any reading you have done or experience you have had, how would you describe "student-centeredness"?

____

____

____

____

____

____

11. A professor, who is particularly dogmatic, has said that a student-centered classroom is the only one where true learning can occur. From your experience, how would you respond to this claim?

____

____

____

____

____

12. Draw a picture of a teacher with a class. Draw as complete a picture as you can. Avoid the use of stick figures. Don't worry about your artistic ability or lack of it, just draw as well as you can.

INTERVIEW FORMAT

INTERVIEW FORMAT

Man: A Course of Study

1. What effects do you think teaching _M:ACS_ has on a teacher? (probe: technique?)

2. If you were asked to observe someone else's classroom, what criteria would you use to decide whether it was a good lesson? (example of probe: teacher actions, student actions?)

3. Before exposure to _M:ACS_, had you come across the concepts of discovery learning or student-centered teaching? (example of probe: in what context?)

4. From your reading and association with _M:ACS_, how would you describe student-centeredness?

5. One of my instructors (or colleagues), who is particularly dogmatic in his statements, has said that a student-centered classroom is the only one where true learning can occur. From you experience, how would you respond to this claim?

6. If you were introducing _M:ACS_ as a new curriculum in your school, how would you recruit teachers?

DRAW-A-CLASSROOM

13. Draw a picture of a teacher with a class. Draw as complete a picture as you can. Avoid the use of stick figures. Don't worry about your artistic ability or lack of it; just draw as well as you can.

DOGMATISM SCALE

PART 2

OPINION QUESTIONNAIRE

The following questions are designed to study what teachers think and feel about a number of important social and personal questions. The best answer to each statement below is your personal opinion. The questions cover many different and opposing points of view. You may find yourself agreeing strongly with some of the statements, disagreeing just as strongly with others, and perhaps uncertain about others: whether you agree or disagree with any statement, you can be sure that many people feel the same as you do.

Mark each statement at the left according to how much you agree or disagree with it. Please mark every one. Write +1, +2, +3, or -1, -2, -3, depending on how you feel in each case.

+1: I agree a little	-1: I disagree a little
+2: I agree on the whole	-2: I disagree on the whole
+3: I agree very much	-3: I disagree very much

1. ___ The U.S. and Russia have just about nothing in common.

2. ___ The highest form of government is a democracy and the highest form of democracy is a government run by those who are most intelligent.

3. ___ Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.

4. ___ It is only natural that a person would have a much better acquaintance with ideas he believes in than with ideas he opposes.

5. ___ Man on his own is a helpless and miserable creature.

6. ___ Fundamentally, the world we live in is a pretty lonesome place.

7. ___ Most people just don't give a "damn" for others.

8. ___ I'd like it if I could find someone who would tell me how to solve my personal problems.

9. ___ It is only natural for a person to be rather fearful of the future.

10. ___ There is so much to be done and so little time to do it in.

11. ___ Once I get wound up in a heated discussion I just can't stop.

12. ___ In a discussion I often find it necessary to repeat myself several times to make sure I am being understood.

13. ___ In a heated discussion I generally become so absorbed in what I am going to say that I forget to listen to what the others are saying.

14. ___ It is better to be a dead hero than to be a live coward.

15. ___ While I don't like to admit this even to myself, my secret ambition is to become a great man, like Einstein, or Beethoven, or Shakespeare.

16. ___ The main thing in life is for a person to want to do something important.

17. ___ If given the chance I would do something of great benefit to the world.

18. ___ In the history of mankind there have probably been just a hamdful of really great thinkers.

19. ___ There are a number of people I have come to hate because of the things they stand for.

20. ___ A man who does not believe in some great cause has not really lived.

21. ___ It is only when a person devotes himself to an ideal or cause that life becomes meaningful.

22. ___ Of all the different philosophies which exist in this world there is probably only one which is correct.

23. ___ A person who gets enthusiastic about too many causes is likely to be a pretty "wishy-washy" sort of person.

24. ___ To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side.

25. ___ When it comes to differences of opinion in religion we must be careful to compromise with those who believe differently from the way we do.

26. ___ In times like these, a person must be pretty selfish if he considers primarily his own happiness.

27. ___ The worst crime a person could commit is to attack publicly the people who believe in the same thing he does.

28. ___ In times like these it is often necessary to be more on guard against ideas put out by people or groups in one's own camp than by those in the opposing camp.

29. ___ A group which tolerates too much differences of opinion among its own members cannot exist for long.

30. ___ There are two kinds of people in this world: those who are for the truth and those who are against the truth.

31. ___ My blood boils whenever a person stubbornly refuses to admit he's wrong.

32. ___ A person who thinks primarily of his own happiness is beneath contempt.

33. ___ Most of the ideas which get printed nowadays aren't worth the paper they are printed on.

34. ___ In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted.

35. ___ It is often desirable to reserve judgment about what's going on until one has had a chance to hear the opinions of those one respects.

36. ___ In the long run the best way to live is to pick friends and associates whose tastes and beliefs are the same as one's own.

37. ___ The present is all too often full of unhappiness. It is only the future that counts.

38. ___ If a man is to accomplish his mission in life it is sometimes necessary to gamble "all or nothing at all."

39. ___ Unfortunately, a good many people with whom I have discussed important social and moral problems don't really understand what's going on.

40. ___ Most people just don't know what's good for them.

SEMANTIC DIFFERENTIAL

PART 3

Directions:

The purpose of this next section is to discover the meaning certain words (or phrases) have for you by getting your rating of the words on a set of descriptive scales.

There are five sheets, each with the same set of 12 scales, and with a different phrase (printed at the top) to be rated on each of the scales. We would like you to rate the phrases on the basis of what they mean to you. Place a check mark on each of the scales wherever you feel the phrase should be rated. Work as fast as you can; don't take too long to make any rating; and rate your first impressions of the words. Don't hesitate to use the extreme ends of the scales, wherever these seem appropriate.

Here is an example of the way you should do this task:

If you were rating the word "STREETCAR" on a 'Fast - Slow' scale, you might feel that "STREETCAR" was moderately fast and would check the scale in the following manner:

Fast ____ : __✓__ : ____ : ____ : ____ Slow

Then you would go on to rate "STREETCAR" on the rest of the scales. Be sure that your check mark is between the dots (in the middle of the line), and that you put one and only one mark on each of the scales on a sheet before going on to the next sheet.

Learning by Discovery

commonplace _____ : _____ : _____ : _____ : _____ unique

genuine _____ : _____ : _____ : _____ : _____ artificial

modern _____ : _____ : _____ : _____ : _____ old-fashioned

active _____ : _____ : _____ : _____ : _____ passive

relaxed _____ : _____ : _____ : _____ : _____ tense

familiar _____ : _____ : _____ : _____ : _____ strange

important _____ : _____ : _____ : _____ : _____ trivial

pleasant _____ : _____ : _____ : _____ : _____ unpleasant

valuable _____ : _____ : _____ : _____ : _____ worthless

harmonious _____ : _____ : _____ : _____ : _____ dissonant

free _____ : _____ : _____ : _____ : _____ constrained

easy _____ : _____ : _____ : _____ : _____ hard

Learning by Discovery

commonplace ____ : ____ : ____ : ____ : ____ unique

genuine ____ : ____ : ____ : ____ : ____ artificial

modern ____ : ____ : ____ : ____ : ____ old-fashioned

active ____ : ____ : ____ : ____ : ____ passive

relaxed ____ : ____ : ____ : ____ : ____ tense

familiar ____ : ____ : ____ : ____ : ____ strange

important ____ : ____ : ____ : ____ : ____ trivial

pleasant ____ : ____ : ____ : ____ : ____ unpleasant

valuable ____ : ____ : ____ : ____ : ____ worthless

harmonious ____ : ____ : ____ : ____ : ____ dissonant

free ____ : ____ : ____ : ____ : ____ constrained

easy ____ : ____ : ____ : ____ : ____ hard

Student-Student Interaction

commonplace ____ : ____ : ____ : ____ : ____ unique

genuine ____ : ____ : ____ : ____ : ____ artificial

modern ____ : ____ : ____ : ____ : ____ old-fashioned

active ____ : ____ : ____ : ____ : ____ passive

relaxed ____ : ____ : ____ : ____ : ____ tense

familiar ____ : ____ : ____ : ____ : ____ strange

important ____ : ____ : ____ : ____ : ____ trivial

pleasant ____ : ____ : ____ : ____ : ____ unpleasant

valuable ____ : ____ : ____ : ____ : ____ worthless

harmonious ____ : ____ : ____ : ____ : ____ dissonant

free ____ : ____ : ____ : ____ : ____ constrained

easy ____ : ____ : ____ : ____ : ____ hard

Ambiguity

commonplace _____ : _____ : _____ : _____ : _____ unique

genuine _____ : _____ : _____ : _____ : _____ artificial

modern _____ : _____ : _____ : _____ : _____ old-fashioned

active _____ : _____ : _____ : _____ : _____ passive

relaxed _____ : _____ : _____ : _____ : _____ tense

familiar _____ : _____ : _____ : _____ : _____ strange

important _____ : _____ : _____ : _____ : _____ trivial

pleasant _____ : _____ : _____ : _____ : _____ unpleasant

valuable _____ : _____ : _____ : _____ : _____ worthless

harmonious _____ : _____ : _____ : _____ : _____ dissonant

free _____ : _____ : _____ : _____ : _____ constrained

easy _____ : _____ : _____ : _____ : _____ hard

Student Initiative in the Classroom

commonplace _____ : _____ : _____ : _____ : _____ unique

genuine _____ : _____ : _____ : _____ : _____ artificial

modern _____ : _____ : _____ : _____ : _____ old-fashioned

active _____ : _____ : _____ : _____ : _____ passive

relaxed _____ : _____ : _____ : _____ : _____ tense

familiar _____ : _____ : _____ : _____ : _____ strange

important _____ : _____ : _____ : _____ : _____ trivial

pleasant _____ : _____ : _____ : _____ : _____ unpleasant

valuable _____ : _____ : _____ : _____ : _____ worthless

harmonious _____ : _____ : _____ : _____ : _____ dissonant

free _____ : _____ : _____ : _____ : _____ constrained

easy _____ : _____ : _____ : _____ : _____ hard

Teacher as Transmitter of Knowledge

commonplace _____ : _____ : _____ : _____ : _____ unique

genuine _____ : _____ : _____ : _____ : _____ artificial

modern _____ : _____ : _____ : _____ : _____ old-fashioned

active _____ : _____ : _____ : _____ : _____ passive

relaxed _____ : _____ : _____ : _____ : _____ tense

familiar _____ : _____ : _____ : _____ : _____ strange

important _____ : _____ : _____ : _____ : _____ trivial

pleasant _____ : _____ : _____ : _____ : _____ unpleasant

valuable _____ : _____ : _____ : _____ : _____ worthless

harmonious _____ : _____ : _____ : _____ : _____ dissonant

free _____ : _____ : _____ : _____ : _____ constrained

easy _____ : _____ : _____ : _____ : _____ hard

NAME ____________________________

CATEGORIES OF THE FLANDERS INTERACTION ANALYSIS

SUMMARY OF

CATEGORIES FOR INTERACTION ANALYSIS

TEACHER TALK	INDIRECT INFLUENCE	1. * ACCEPTS FEELING: accepts and clarifies the feeling tone of the students in a nonthreatening manner. Feelings may be positive or negative. Predicting or recalling feelings is included.
		2. * PRAISES OR ENCOURAGES: praises or encourages student action or behavior. Jokes that release tension, but not at the expense of another individual; nodding head, or saying "um hm?" or "go on" are included.
		3. * ACCEPTS OR USES IDEAS OF STUDENTS: clarifying, building, or developing ideas suggested by a student. As teacher brings more of his own ideas into play, shift to Category 5.
		4. * ASKS QUESTIONS: asking a question about content or procedure with the intent that a student answer.
	DIRECT INFLUENCE	5. * LECTURING: giving facts or opinions about content or procedures; expressing his own ideas, asking rhetorical questions.
		6. * GIVING DIRECTIONS: directions, commands, or orders with which a student is expected to comply.
		7. * CRITICIZING OR JUSTIFYING AUTHORITY: statements intended to change student behavior from nonacceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference.
STUDENT TALK		8. * STUDENT TALK - RESPONSE: talk by students in response to teacher. Teacher initiates the contact or solicits student statement.
		9. * STUDENT TALK - INITIATION: talk by students, which they initiate. If "calling on" student is only to indicate who may talk next, observer must decide whether student wanted to talk. If he did, use this category.
		10. * SILENCE OR CONFUSION: pauses, short periods of silence, an periods of confusion in which communication cannot be understood by the observer.

* There is NO scale implied by these numbers. Each number is classificatory; it designates a particular kind of communication event. To write these numbers down durin observation is to enumerate--not to judge a position on a scale.

RYANS CLASSROOM OBSERVATION RECORD

AND

GLOSSARY OF CLASSROOM BEHAVIORS

CLASSROOM OBSERVATION RECORD

PUPIL BEHAVIOR: REMARKS:

1.	Apathetic	1	2	3	4	5	6	7	N	Alert
2.	Obstructive	1	2	3	4	5	6	7	N	Responsible
3.	Uncertain	1	2	3	4	5	6	7	N	Confident
4.	Dependent	1	2	3	4	5	6	7	N	Initiating

TEACHER BHEAVIOR:

5.	Partial	1	2	3	4	5	6	7	N	Fair
6.	Autocratic	1	2	3	4	5	6	7	N	Democratic
7.	Aloof	1	2	3	4	5	6	7	N	Responsive
8.	Restricted	1	2	3	4	5	6	7	N	Understanding
9.	Harsh	1	2	3	4	5	6	7	N	Kindly
10.	Dull	1	2	3	4	5	6	7	N	Stimulating
11.	Stereotyped	1	2	3	4	5	6	7	N	Original
12.	Evading	1	2	3	4	5	6	7	N	Responsible
13.	Erratic	1	2	3	4	5	6	7	N	Steady
14.	Excitable	1	2	3	4	5	6	7	N	Poised
15.	Disorganized	1	2	3	4	5	6	7	N	Systematic
16.	Pessimistic	1	2	3	4	5	6	7	N	Optimistic

GLOSSARY

(To be used with Classroom Observation Record)

PUPIL BEHAVIORS

1. Apathetic-Alert Pupil Behavior

Apathetic

1. Listless.
2. Bored-acting.
3. Entered into activities half-heartedly.
4. Restless.
5. Attention wandered.
6. Slow in getting under way.

Alert

1. Appeared anxious to recite and participate.
2. Watched teacher attentively.
3. Worked concentratedly.
4. Seemed to respond eagerly.
5. Prompt and ready to take part in activities when they begin.

2. Obstructive-Responsible Pupil Behavior

Obstructive

1. Rude to one another and/or to teacher.
2. Interrupting; demanding attention; disturbing.
3. Obstinate; sullen.
4. Refusal to participate.
5. Quarrelsome; irritable.
6. Engaged in name-calling and/or tattling.
7. Unprepared.

Responsible

1. Courteous, cooperative, friendly with each other and with teacher.
2. Completed assignments without complaining or unhappiness.
3. Controlled voices.
4. Received help and criticism attentively.
5. Asked for help when needed.
6. Orderly without specific directions from teacher.
7. Prepared.

3. Uncertain-Confident Pupil Behavior

Uncertain

1. Seemed afraid to try; unsure.
2. Hesitant; restrained.
3. Appeared embarrassed.
4. Frequent display of nervous habits, nail-biting, etc.
5. Appeared shy and timid.
6. Hesitant and/or stammering speech.

Confident

1. Seemed anxious to try new problems or activities.
2. Undisturbed by mistakes.
3. Volunteered to recite.
4. Entered freely into activities.
5. Appeared relaxed.
6. Spoke with assurance.

GLOSSARY
(cont.)

4. Dependent-Initiating Pupil Behavior

Dependent

1. Relied on teacher for explicit directions.
2. Showed little ability to work things out for selves.
3. Unable to proceed when initiative called for.
4. Appeared reluctant to take lead or to accept responsibility.

Initiating

1. Volunteered ideas and suggestions.
2. Showed resourcefulness.
3. Took lead willingly.
4. Assumed responsibilities without evasion.

TEACHER BEHAVIORS

5. Partial-Fair Teacher Behavior

Partial

1. Repeatedly slighted a pupil.
2. Corrected or criticized certain pupils repeatedly.
3. Repeatedly gave a pupil special advantages.
4. Gave most attention to one or a few pupils.
5. Showed prejudice (favorable or unfavorable) toward some social, racial, or religious groups.
6. Expressed suspicion of motives of a pupil.

Fair

1. Treated all pupils approximately equally.
2. In case of controversy pupil allowed to explain his side.
3. Distributed attention to many pupils.
4. Rotated leadership impartially.
5. Based criticism or praise on factual evidence, not hearsay.

6. Autocratic-Democratic Teacher Behavior

Autocratic

1. Told pupils each step to take.
2. Intolerant of pupils' ideas.
3. Mandatory in giving directions; orders to be obeyed at once.
4. Interrupted pupils although their discussion was relevant.
5. Always directed rather than participated.

Democratic

1. Guided pupils without being mandatory.
2. Exchanged ideas with pupils.
3. Encouraged (asked for) pupil opinion.
4. Encouraged pupils to make own decisions.
5. Entered into activities without domination.

GLOSSARY
(cont.)

7. Aloof-Responsive Teacher Behavior

Aloof

1. Stiff and formal in relations with pupils.
2. Apart; removed from class activity.
3. Condescending to pupils.
4. Routine and subject matter only concern; pupils as persons ignored.
5. Referred to pupil as "this child" or "that child."

Responsive

1. Approachable to all pupils.
2. Participated in class activity.
3. Responded to reasonable requests and/or questions.
4. Spoke to pupils as equals.
5. Commended effort.
6. Gave encouragement.
7. Recognized individual differences.

8. Restricted-Understanding Teacher Behavior

Restricted

1. Recognized only academic accomplishments of pupils; no concern for personal problems.
2. Completely unsympathetic with a pupil's failure at a task.
3. Called attention only to very good or very poor work.
4. Was impatient with a pupil.

Understanding

1. Showed awareness of a pupil's personal emotional problems and needs.
2. Was tolerant of error on part of pupil.
3. Patient with a pupil beyond ordinary limits of patience.
4. Showed what appeared to be sincere sympathy with a pupil's viewpoint.

9. Harsh-Kindly Teacher Behavior

Harsh

1. Hypercritical; fault-finding.
2. Cross; curt.
3. Depreciated pupil's efforts; was sarcastic.
4. Scolded a great deal.
5. Lost temper.
6. Used threats.
7. Permitted pupils to laugh at mistakes of others.

Kindly

1. Went out of way to be pleasant and/or to help pupils; friendly.
2. Gave a pupil a deserved compliment.
3. Found good things in pupils to call attention to.
4. Seemed to show sincere concern for a pupil's personal problem.
5. Showed affection without being demonstrative.
6. Disengaged self from a pupil without bluntness.

GLOSSARY
(cont.)

10. Dull-Stimulating Teacher Behavior

Dull

1. Uninteresting, monotonous explanations.
2. Assignments provided little or no motivation.
3. Failed to provide challenge.
4. Lacked animation.
5. Failed to capitalize on pupil interests.
6. Pedantic, boring.
7. Lacked enthusiasm; bored-acting.

Stimulating

1. Highly interesting presentation; got and held attention without being flashy.
2. Clever and witty, though not smart-alecky or wisecracking.
3. Enthusiastic; animated.
4. Assignments challenging.
5. Took advantage of pupil interests.
6. Brought lesson successfully to a climax.
7. Seemed to provoke thinking.

11. Stereotyped-Original Teacher Behavior

Stereotyped

1. Used routine procedures without variation.
2. Would not depart from procedure to take advantage of a relevant question or situation.
3. Presentation seemed unimaginative.
4. Not resourceful in answering questions or providing explanations.

Original

1. Used what seemed to be original and relatively unique devices to aid instruction.
2. Tried new materials or methods.
3. Seemed imaginative and able to develop presentation around a question or situation.
4. Resourceful in answering questions; had many pertinent illustrations available.

12. Evading-Responsible Teacher Behavior

Evading

1. Avoided responsibility; disinclined to make decisions.
2. "Passed the buck" to class, to other teachers, etc.
3. Left learning to pupil, failing to give adequate help.

Responsible

1. Assumed responsibility; made decisions as required.
2. Conscientious.
3. Punctual.
4. Painstaking; careful.
5. Suggested aids to learning.
6. Controlled a difficult situation.
7. Gave definite directions.

GLOSSARY
(cont.)

12. cont.

Evading

4. Let a difficult situation get out of control.
5. Assignments and directions indefinite.
6. No insistence on either individual or group standards.
7. Inattentive with pupils.
8. Cursory.

Responsible

8. Called attention to standards of quality.
9. Attentive to class.
10. Thorough.

13. Erratic-Steady Teacher Behavior

Erratic

1. Impulsive; uncontrolled; temperamental; unsteady.
2. Course of action easily swayed by circumstances of the moment.
3. Inconsistent.

Steady

1. Calm; controlled.
2. Maintained progress toward objective.
3. Stable, consistent, predictable.

14. Excitable-Poised Teacher Behavior

Excitable

1. Easily disturbed and upset; flustered by class room situation.
2. Hurried in class activities; spoke rapidly using many words and gestures.
3. Was "jumpy"; nervous.

Poised

1. Seemed at ease at all times.
2. Unruffled by situation that developed in classroom; dignified without being stiff or formal.
3. Unhurried in class activities; spoke quietly and slowly.
4. Successfully diverted attention from a stress situation in classroom.

15. Disorganized-Systematic Teacher Behavior

Disorganized

1. No plan for classwork.
2. Unprepared.
3. Objectives not apparent; undecided as to next step.
4. Wasted time.
5. Explanations not to the point.

Systematic

1. Evidence of a planned though flexible procedure.
2. Well prepared.
3. Careful in planning with pupils.
4. Systematic about procedure of class.

GLOSSARY
(cont.)

15. cont.

Disorganized

6. Easily distracted from matter at hand.

Systematic

5. Had anticipated needs.
6. Provided reasonable explanations.
7. Held discussion together; objectives apparent.

16. Pessimistic-Optimistic Teacher Behavior

Pessimistic

1. Depressed; unhappy.
2. Skeptical.
3. Called attention to potential "bad."
4. Expressed hopelessness of "education today," the school system, or fellow educators.
5. Noted mistakes; ignored good points.
6. Frowned a great deal; had unpleasant facial expression.

Optimistic

1. Cheerful; good-natured.
2. Genial.
3. Joked with pupils on occasion.
4. Emphasized potential "good."
5. Looked on bright side; spoke optimistically of the future.
6. Called attention to good points; emphasized the positive.

INFORMAL CLASSROOM
RECORD AND CHECKLIST

Man: A Course of Study

Observations

Observer: ______________		Date: ______________	
Teacher: ______________		School: ______________	
Topic of lesson: ______________		City: ______________	
Length of lesson: ______________			

A. Description of the content of the lesson:

Note especially: way in which the lesson was introduced and concluded, materials used and reactions to them, examples of questions, answers, and comments by teachers and pupils.

B. Enter the number of the classroom structure beside each activity that took place.

whole class.....1
small group.....2
individual......3
other (specify).4

_____ arts and crafts
_____ viewing
_____ reading - text
_____ reading - other
_____ lecture by teacher
_____ guided discussion
_____ role-play

_____ listening (records, etc.)
_____ student report
_____ question-answer
_____ open-ended discussion
_____ laboratory
_____ other (specify: __________)

C. Time sequence of activities:

_____ at least some simultaneous
_____ one activity at a time

D. Objective of lesson: (check no more than two)

_____ information
_____ concepts
_____ skills
_____ interpersonal behavior
_____ too difficult to decipher
_____ other (specify: ______________)

APPENDIX B

BASE DATA

BASE DATA - M:ACS TEACHERS

	FLANDERS														RYANS			CHECKLIST			
MACS	I/D	R. I/D	Teach Talk %	St Talk %	Extended Indirect	Extended Direct	Teacher Indirect	Summary Direct	St Talk I:D	St Talk [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	X	Y	Z	Activities	Variety	Purpose	Duration
B-1																					4.4
B-2	.80	.95	.39	.61	.21	.00	.90	.10	9.33	.22	.78	.28	.02	.98	6.0	6.8	6.5	4	One	Co 11.8	4.2
B-3	.51	.77	.42	.58	.05	.01	.90	.10	9.00	.24	.76	.31	.36	.64	7.0	6.4	6.5	6	Sm	Concpts	4.6
B-4	.32	.44	.71	.29	.12	.10	.74	.26	2.88	.42	.58	.72	.20	.80	6.8	6.6	7.0	6	Sm	Concpts	
C-1	.46	.34	.34	.66	.01	.02	.48	.52	0.94	.23	.77	.31	.05	.95	5.2	6.2	4.5	3	Sm	Concpts	5.0
C-2	.80	.78	.38	.62	.02	.00	.85	.15	5.88	.33	.67	.50	.10	.90	7.0	6.6	7.0	5	One	C+3B	4.8
C-3	.71	.81	.50	.50	.05	.00	.83	.17	5.00	.33	.67	.49	.24	.76	5.8	5.6	6.0	3	One	Concpts	
C-4	NO FLANDERS DATA														6.6	6.2	5.5	2	One	Concpts	4.8
C-5																					4.2
C-6	.45	.57	.56	.44	.01	.02	.64	.36	1.80	.50	.50	.98	.26	.74	5.8	6.8	4.5	4	One	C+3B	4.4
C-7	.53	.42	.61	.39	.02	.07	.84	.16	5.20	.44	.56	.80	.20	.80	5.2	3.4	4.0	2	One	Concpts	
F-1	.54	.86	.64	.36	.01	.01	.80	.20	4.00	.53	.47	1.11	.03	.97	6.0	6.8	5.5	6	One	Idea Bk	4.6
F-2	.24	.60	.80	.20	.03	.05	.74	.26	2.80	.55	.45	1.20	.21	.79	5.9	5.8	6.0	3	One	Concpts	4.8
F-3	NO FLANDERS																				4.4
F-4															6.2	6.2	5.0	1	One		4.4
F-5	.65	.64	.82	.18	.04	.05	.96	.04	25.00	.77	.33	3.38	.71	.29	6.8	5.6	4.5	9	One	Concpts	4.6
F-6	.33	.64	.82	.18	.01	.01	.79	.21	3.88	.91	.12	7.40	.98	.02	2.6	4.2	2.0	4	One	Inform	4.6
x̄	.56	.65	.58	.42	.04	.03	.79	.21	6.31	.45	.56	1.46	.28	.72	5.84	5.94	5.32	4.07			
s	.18	.18	.17	.17	.05	.03	.12	.12	6.15	.20	.19	1.96	.28	.28	1.06	.97	1.32	1.87			
R-1																					4.8
R-2																					5.0
R-3																					4.8
R-4	NO FLANDERS, ETC.																				4.6
R-5																					4.6
R-6																					5.0
L-1																					4.8
L-2																					4.8
L-3																					4.2
L-4																					4.4
																				x̄	4.58
																				σ	.21

		RYANS			CHECKLIST			SEMANTIC DIFFERENTIAL															
								EVALUATIVE					ACTIVITY					NOVELTY					
		X	Y	Z	Activities	Variety	Purpose	Dummy	S.S.	Ambiguity	S. Subtle	Teacher	Dummy	S.S.	Ambiguity	S. Subtle	Teacher	Dummy	S.S.	Ambiguity	S. Subtle	Teacher	Dogma
								4.4	4.4	3.2	4.0	2.2	4.0	4.5	3.0	4.0	3.5	3.0	1.0	3.0	2.5	3.0	107
	.91	6.0	6.8	6.5	4	One	Con I.B	4.2	4.0	2.4	4.8	3.2	4.0	3.5	3.0	4.5	3.5	4.0	1.5	3.5	3.0	1.0	144
	.44	7.0	6.4	6.5	6	Some	Concepts	4.6	4.0	3.0	3.2	2.2	4.5	3.0	3.5	3.0	4.0	4.5	3.5	3.0	5.0	1.0	106
	.90	6.8	6.6	7.0	6	Some	Concepts						NOT	RETURNED									
	.95	5.2	6.2	4.5	3	Some	Concepts	5.0	4.6	2.2	4.8	1.4	3.0	3.5	5.0	3.5	4.5	2.5	2.5	1.0	1.0	1.0	159
	.90	7.0	6.6	7.0	5	One	C+IB	4.8	4.2	3.4	4.8	4.2	4.0	4.0	3.0	5.0	3.5	2.0	2.0	3.0	1.0	3.0	135
	.70	5.8	5.6	6.0	3	One	Concepts						NOT	RETURNED									
		6.6	6.2	5.5	2	One	Concepts	4.8	5.0	1.8	5.0	4.8	5.0	5.0	2.5	5.0	5.0	2.5	2.0	2.5	1.0	2.0	101
								4.2	—	2.6	4.2	1.0	3.0	—	4.0	5.0	2.0	1.0	—	2.5	1.0	1.0	93
	.94	5.8	6.8	4.5	4	One	C+IB	4.4	4.4	3.8	4.6	1.8	3.0	4.0	3.0	3.0	3.0	3.5	3.0	1.0	2.5	1.0	79
	.90	5.2	3.4	4.0	2	One	Concepts			OPINIONAIRE					NOT			RETURNED					
	.99	6.0	6.8	5.5	6	One	Wk Bk	4.6	4.2	2.8	4.4	4.8	4.5	5.0	2.5	2.0	4.0	3.5	1.5	1.5	3.5	[illegible]	157
	.99	5.8	5.8	6.0	3	One	Concepts	4.8	4.8	3.6	5.0	3.8	4.8	4.5	3.5	3.0	3.5	3.5	2.0	4.5	2.5	[illegible]	140
								4.4	4.6	2.6	4.8	2.4	4.5	4.5	3.0	5.0	2.5	3.0	2.0	2.5	1.5	1.0	129
		6.2	6.2	5.0	1	One		4.4	4.6	2.2	4.6	2.4	3.0	3.0	2.5	3.5	2.0	4.5	3.0	2.5	3.5	1.0	199
	.29	6.8	5.6	4.5	8	One	Concepts	4.6	4.2	2.8	4.4	4.6	4.0	3.5	4.0	4.5	3.5	2.0	2.5	3.5	2.5	1.5	163
	.62	3.6	4.2	2.0	4	One	Info	4.2	4.3	3.6	4.2	4.0	4.0	4.0	3.5	3.5	4.0	1.5	3.0	3.0	2.0	1.5	192
	.72	5.84	5.94	5.32	4.07																		
	.28	1.06	.99	1.32	1.87																		
								4.8	5.0	4.2	4.8	2.8	4.5	4.5	1.5	4.0	3.0	2.5	1.0	4.0	1.5	3.0	148
								5.0	4.4	2.0	4.4	1.8	3.0	3.5	3.0	4.0	4.5	1.5	2.0	2.0	2.5	2.0	109
								4.8	4.2	3.0	4.0	2.4	3.3	3.5	1.5	4.5	2.0	3.5	1.0	3.0	1.5	3.0	102
								4.6	4.2	3.0	4.6	4.4	4.5	3.5	5.0	3.0	3.0	1.5	1.0	1.0	4.0	1.0	152
								4.6	4.4	2.4	4.6	2.6	2.5	4.5	1.5	2.5	5.0	3.0	1.5	1.5	2.0	1.0	135
								5.0	4.8	4.0	5.0	1.2	4.5	5.0	4.0	5.0	1.0	1.5	1.5	3.0	1.0	3.0	104
								3.8	4.0	4.4	4.4	4.8	3.5	4.0	3.5	4.0	3.5	3.0	1.5	3.0	3.5	2.5	123
								4.8	4.6	3.0	4.8	2.6	3.0	4.5	3.5	4.0	1.5	2.0	2.0	3.0	1.5	2.5	154
								4.2	4.0	3.4	4.6	4.4	3.5	3.0	4.0	3.0	4.5	2.5	2.5	3.0	3.5	1.5	145
								4.0	3.4	3.0	3.2	3.0	3.0	5.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	105
							$\bar{X}$	4.58	4.36	2.93	4.47	3.03	3.92	4.17	3.10	3.85	3.29	2.71	1.98	2.00	2.31	2.00	134.3
							σ	.28	.36	.70	.47	1.20	.72	.64	.92	.90	1.00	.95	.70	.90	1.09	.89	22.3

BASE DATA - NON-M:ACS TEACHERS

							FLANDERS								RYANS			CHECKLIST		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	X	Y	Z	[illegible]	[illegible]	[illegible]
1	.63	.36	.46	.54	.05	.04	.78	.22	3.63	.30	.90	.44	.61	.32	6.8	5.2	3.5	7	One	Inh
1	.91	.95	.65	.36	.10	.00	.88	.13	9.00	.33	.17	6.00	.12	.18	—	—	—	—	—	—
1	.41	.44	.41	.33	.04	.08	.8	.62	.61	.38	.56	.32	.78	.02	3.0	5.5	6.0	2	One	Inh
1	.6	.41	.6	.28	.01	.03	.90	.10	3.67	.53	.48	1.09	.32	.48	5.4	6.1	3.5	2	One	Inh
1	.39	.19	.65	.31	.02	.01	.69	.31	2.33	.31	.44	1.08	.23	.97	6.4	6.4	4.5	2	One	Inh
1	.14	.23	.89	.4	.01	.15	.55	.45	1.20	.13	.17	5.00	0	1.66	4.0	7.0	3.0	3	One	
1	.44	.33	.60	.40	.06	.04	.77	.23	3.33	.31	.79	.26	.47	.33	5.6	5.8	4.5	2	One	Inh
1	.34	.4	.75	.35	.03	.02	.81	.17	4.40	.42	.53	.72	.20	.10	4.4	6.6	3.5	2	One	Inh
1	.42	.44	.61	.38	.01	.05	.73	.18	3.57	.35	.65	.53	.01	.91	6.8	8.0	6.5	3	Sim	Inh
1	.38	.76	.66	.34	.02	.02	.87	.13	6.67	.77	.23	3.33	.74	.26	4.0	5.8	3.5	2	One	Inh
1	.41	.65	.61	.35	.04	.04	.88	.27	4.11	.49	.53	1.31	.47	.33	5.64	6.31	7.72	1.91	[illegible]	[illegible]
1	.18	.20	.12	.12	.09	.04	.10	.15	2.42	.26	.20	1.09	.32	.26	1.16	.68	1.60	1.55		

	RYANS			CHECKLIST			SEMANTIC DIFFERENTIAL															DOGMATISM
							EVALUATIVE					ACTIVITY					NOVELTY					
[illegible]	X	Y	Z	Sch. hrs	Enc Seq.	Purpose	Discovery	St-St	Ambiguity	St Initiative	Teacher	Discovery	St-St	Ambiguity	St Initiative	Teacher	Discovery	St-St	Ambiguity	St Initiative	Teacher	
.33	6.8	5.2	5.5	7	One	Info																
.18	—	—	—	—	—	—																
.02	2.0	3.3	1.0	2	One	Info	NO OPINIONAIRE DATA															
.48	5.4	6.8	2.5	2	One	Info																
.77	6.4	6.4	4.5	2	One	Info	4.0	3.3	2.6	3.0	2.8	3.5	3.0	3.5	4.0	2.0	3.5	2.5	3.0	1.5	2.0	109
1.[illegible]	4.0	7.0	3.0	3	One	Info	5.0	4.0	2.0	2.8	2.8	4.0	4.5	4.0	3.5	1.0	2.5	1.0	2.0	4.5	4.0	141
.53	5.6	6.8	4.5	2	One	Info	4.2	4.0	2.6	4.3	3.8	4.0	4.0	2.5	4.0	3.5	2.5	2.5	3.0	2.5	2.5	53
.80	4.4	6.6	3.5	2	One	Info	4.4	3.6	2.6	3.6	3.0	3.0	2.5	2.5	3.5	3.0	2.5	3.0	2.5	2.5	3.0	189
.91	6.8	7.0	6.5	3	Sim	Un Prov	4.4	4.2	—	3.8	1.8	3.0	2.5	—	3.5	3.0	3.5	1.5	—	2.0	4.5	136
.26	4.0	.58	2.5	2	One	Info	4.0	3.8	—	4.3	3.8	2.0	4.0	—	5.0	3.0	2.5	2.0	—	1.0	2.0	117
.83	5.04	6.31	3.72	2.78	11% in 11% Sim	11% Info	*4.4	4.0	2.4	4.0	3.8	2.5	3.5	3.5	2.5	4.5	1.5	2.5	3.5	2.0	1.0	169
.32	1.40	.68	1.61	1.55			*4.4	4.4	2.4	4.4	2.4	4.0	4.5	2.0	4.0	2.5	3.0	3.0	3.0	3.5	1.5	127
							M 4.35	3.98	2.40	4.00	2.88	3.40	3.69	3.00	3.35	2.69	2.69	2.38	3.00	2.31	2.06	128.63
							S .30	.23	.49	.60	.64	.43	.66	.71	.48	1.00	.61	.78	.50	.97	1.16	31.76

*Opinionaire data of teachers not observed

BASE DATA - FLANDERS COMPARISON

ENCY F: ELLS *	M:ACS TEACHERS 1	2	3	4	5	6	7	8	9	10	11	12	FLANDERS X̄
5-7	0	0	0	0	0	0	0	0	0	0	0	0	0
6-7	0	0	0	0	0	.01	0	0	0	0	0	0	0
7-7	.01	0	0	0	.01	.01	0	0	0	0	0	0	.003
8-7	.01	0	0	0	0	.01	0	0	0	0	.01	0	.003
4-8	.09	.01	.02	.07	.05	.04	.06	.04	.09	.01	.13	.06	.06
8-8	0	0.	0	.03	.01	0	.13	.01	.05	0	0	0	.02
TEGORIES *													
3	.04	.02	.04	.07	.02	.012	.04	.02	0	.06	.02	.02	.03
6	.01	.01	.03	.01	.048	.024	.017	.045	.011	.01	.03	.01	.03
7	.04	.01	.03	.01	0.5	.024	0	.02	.0	0	.04	.01	.02
8	.10	.01	.03	.11	.05	.04	2	.04	.12	.01	.14	.05	.08
9	.30	.33	.50	.35	.229	.152	.36	.26	.048	.56	.004	.42	.29

These cell and category frequencies were tabulated because they were mentioned by Flanders (1967) as possible differentiators between direct

FLANDERS SYSTEM

	TEACHERS					non-M:ACS TEACHERS										
	9	10	11	12	X̄	1	2	3	4	5	6	7	8	9	10	X̄
	0	0	0	0	0	0	0	0	.01	0	0	0	0	.01	0	.002
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	.003	.01	0	.01	0	0	.02	.0	.01	.03	.01	.009
	[illegible]	0	.01	0	.003	0	0	.01	0	0	0	0	0	0	.02	.003
4	.09	.01	.13	.06	.06	.08	.15	.07	.08	.05	0	.05	.05	02	.21	.076
1	.03	0	0	0	.02	.26	.11	.34	.04	.01	0	.12	0	0	.01	.089
	0	.06	.02	.02	.03	.036	.0241	.014	.076	.01	.02	.05	.03	.08	.05	.04
8	.017	.01	03	01	.03	031	.007	.051	.031	.02	.13	.07	.005	02	.003	.04
	.01	0	04	.01	.02	.036	005	.012	.019	01	.03	0	.02	.04	.27	.05
4	.12	.01	.11	.05	.08	.328	276	.45	.119	.07	0	.17	.05	.05	.19	.17
	.048	.56	.004	.42	.29	.154	.051	.001	111	.23	.10	.19	.19	.34	.07	.15

ulated because they were
ferentiators between direct

APPENDIX C

QUOTES AND DRAWINGS

QUOTATIONS FROM INTERVIEWS

QUOTED RESPONSES TO INTERVIEW ITEMS

QUESTION 1 - teaching techniques:

- "I recognize that I don't know things - I'm in a shakier position."
- "There is less opportunity for a range of activities."- negative opinion
- "The absence of textbooks generates a need for ingenuity."
- "I have more respect for the lower students through teaching M:ACS."

QUESTION 2 - criteria of a good lesson:

- find out "how they feel about something ... make them feel important."
- "You must know what the teacher's objectives are and place the lesson within the context of the overall objectives."
- "....how many times the children challenge themselves, each other and the teacher."
- "The child must be enthusiastic; the content must be worth learning, must be related to child's experience."

QUESTION 3 - knowledge of concepts:

- "knowledge without experience"
- "I knew it was the ideal situation in the classroom."

QUESTION 4 - student-centeredness (description):

- "It describes itself."
- "The program is based on the whole student. There is a consideration of ability and personality - of the home, the school, interests, academic, psychological, and emotional needs. There is co-operative planning of the teacher, the child, and other supportive people, such as counsellors, parents, etc."
- "Student-centeredness follows what the child himself is questioning."
- "The teacher must be sensitive to the child's needs and sometimes is the prime learner."
- "Every child must be involved at his own level of learning and be given credit for his ideas and concepts that he is able to produce at his own level."
- "....balanced program of individualized instruction and group work because group interaction fulfills individual needs."
- "A situation where students, with guidance, are coming up with material rather than the teacher expounding."
- "A program is proposed and students come up with the answer in small groups or on their own."

QUESTION 5 - response to dogmatic statement:

- "I wouldn't be dogmatic about learning because I don't know where it occurs - it seems to be the better situation for the moment."

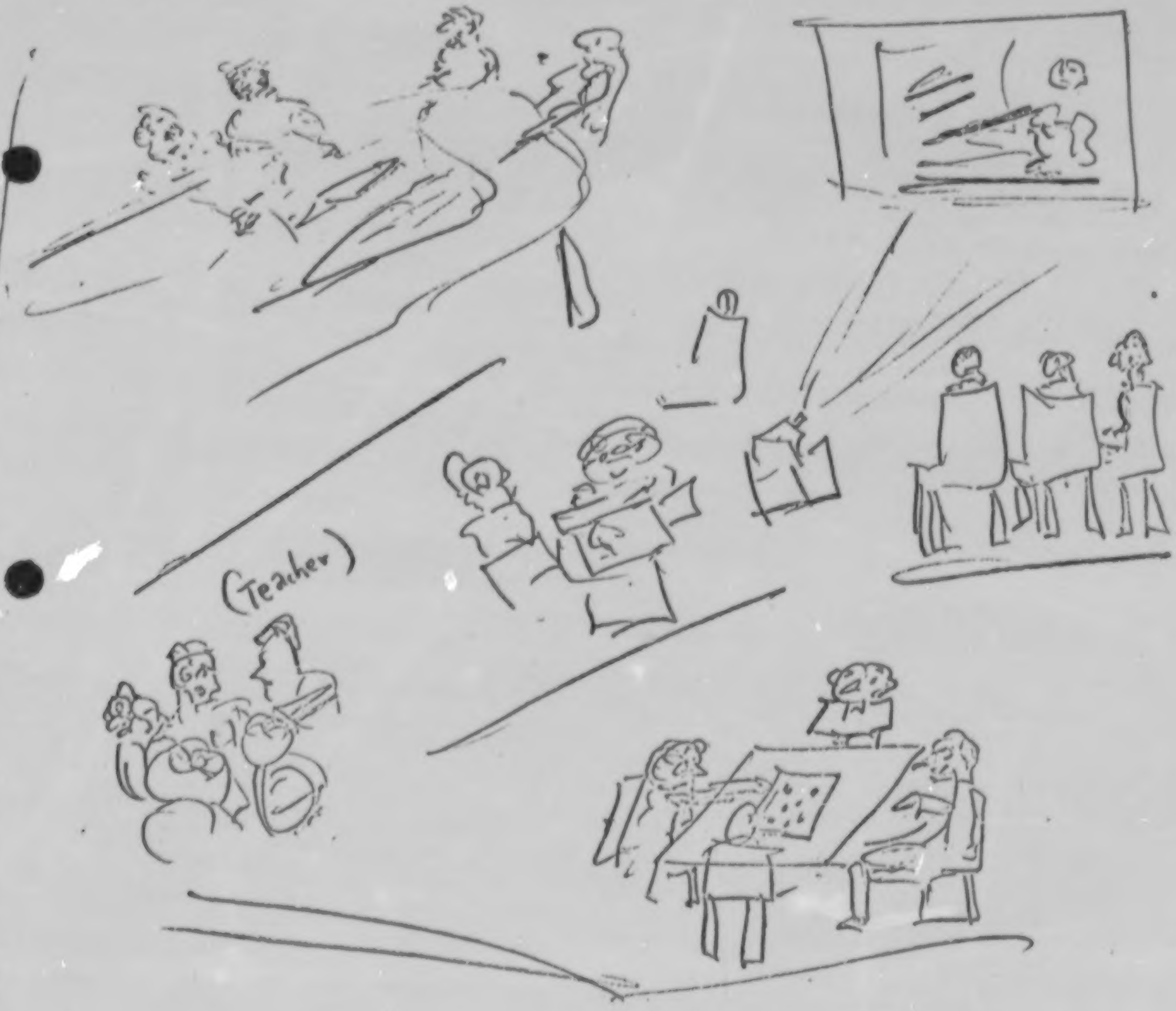
QUESTION 6 - criteria for selection of teachers:

- "Many couldn't stand it - course has built-in saleability for those who agree with the concepts."
- "Look about for teachers who were not certain they were the 'last word' - someone with a 'give-and-take' attitude - someone who does not believe the younger generation is going to hell! "

DRAW-A-CLASSROOM

M:ACS TEACHERS

13. Draw a picture of a teacher with a class. Draw as complete a picture as you can. Avoid the use of stick figures. Don't worry about your artistic ability or lack of it; just draw as well as you can.



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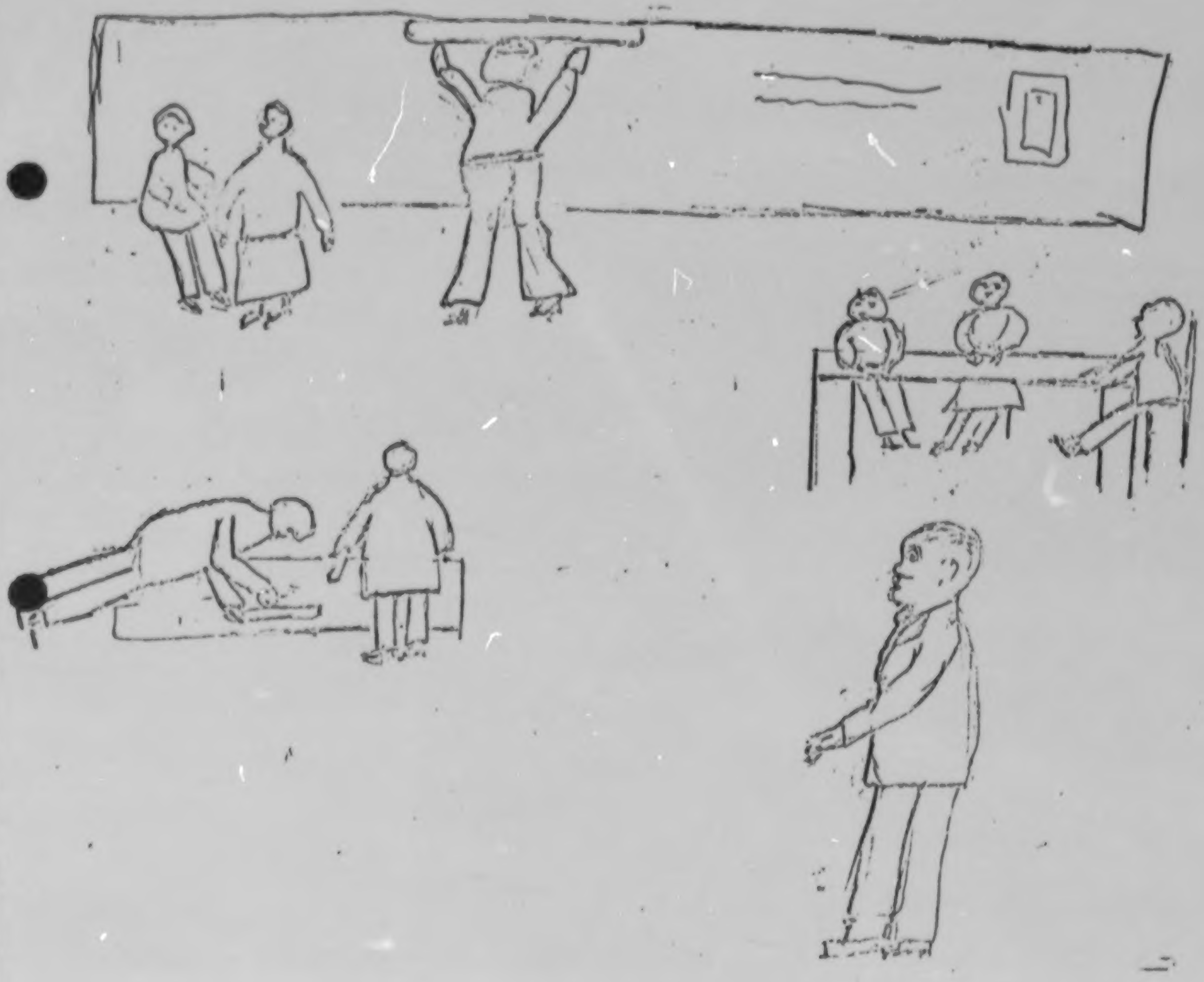
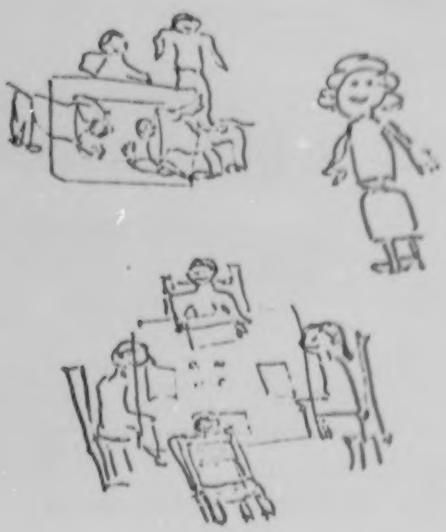


However, I will be the *only* sixth grade teacher of LHAJ. doing the course next year. The course is being moved to 5th

13. Draw a picture of a teacher with a class. Draw as complete a picture as you can. Avoid the use of stick figures. Don't worry about your artistic ability or lack of it; just draw as well as you can.



13. Draw a picture of a teacher with a class. Draw as complete a picture as you can. Avoid the use of stick figures. Don't worry about your artistic ability or lack of it; just draw as well as you can.

Are you kidding? There is no one "set" picture in my classroom. We work in groups (not the same naturally for different subjects), so it is usually a semi-informal classroom, with teacher "all over the place". We only learn when we are comfortable and happy.

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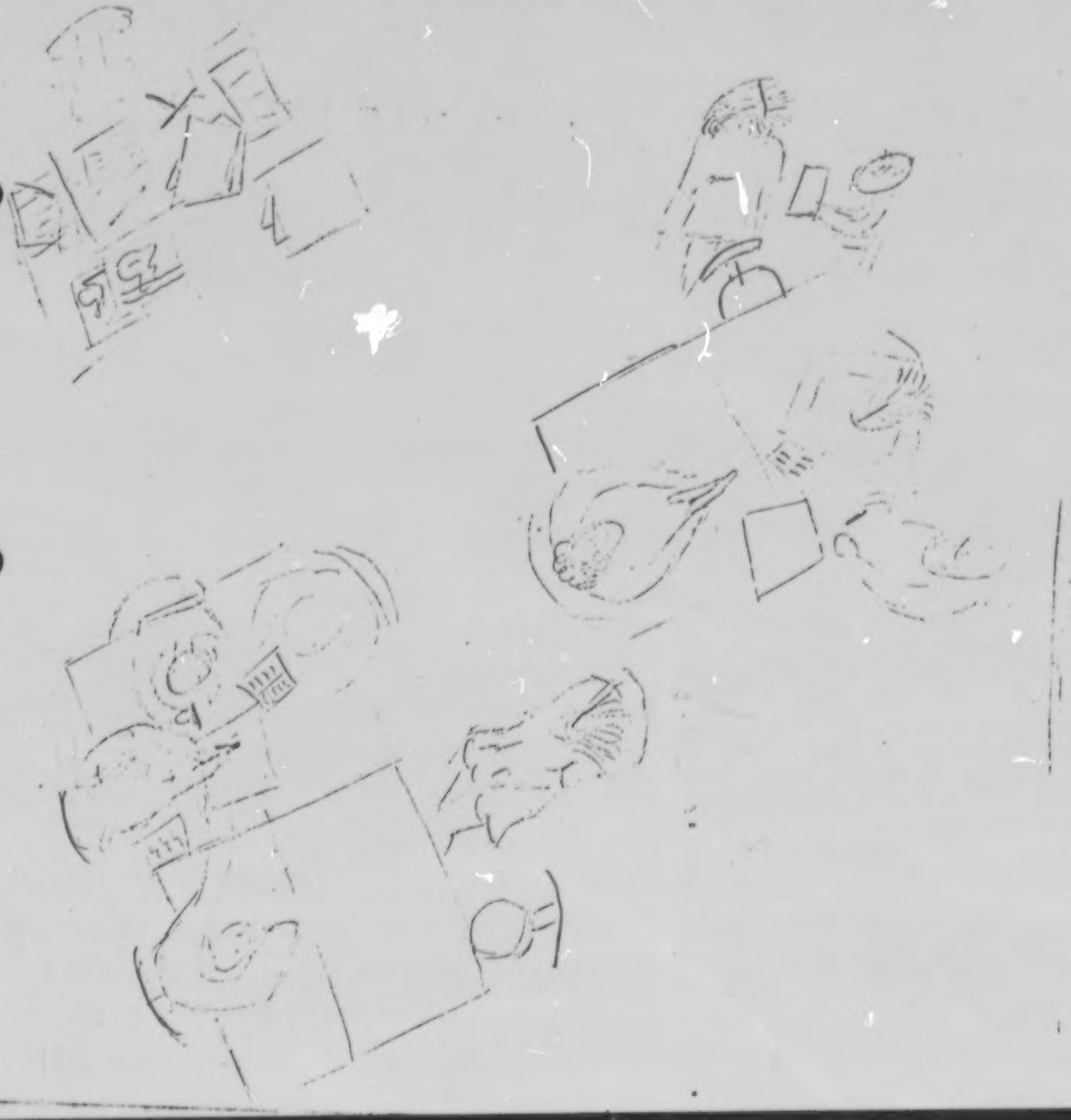

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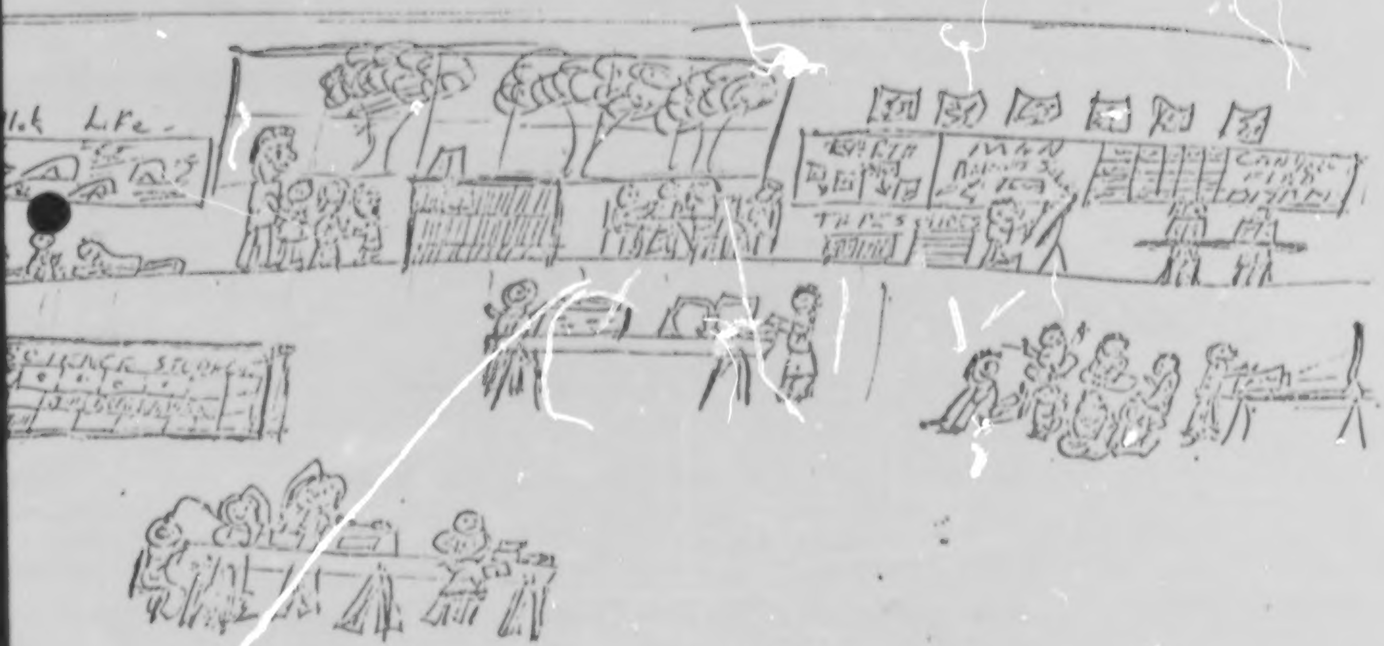
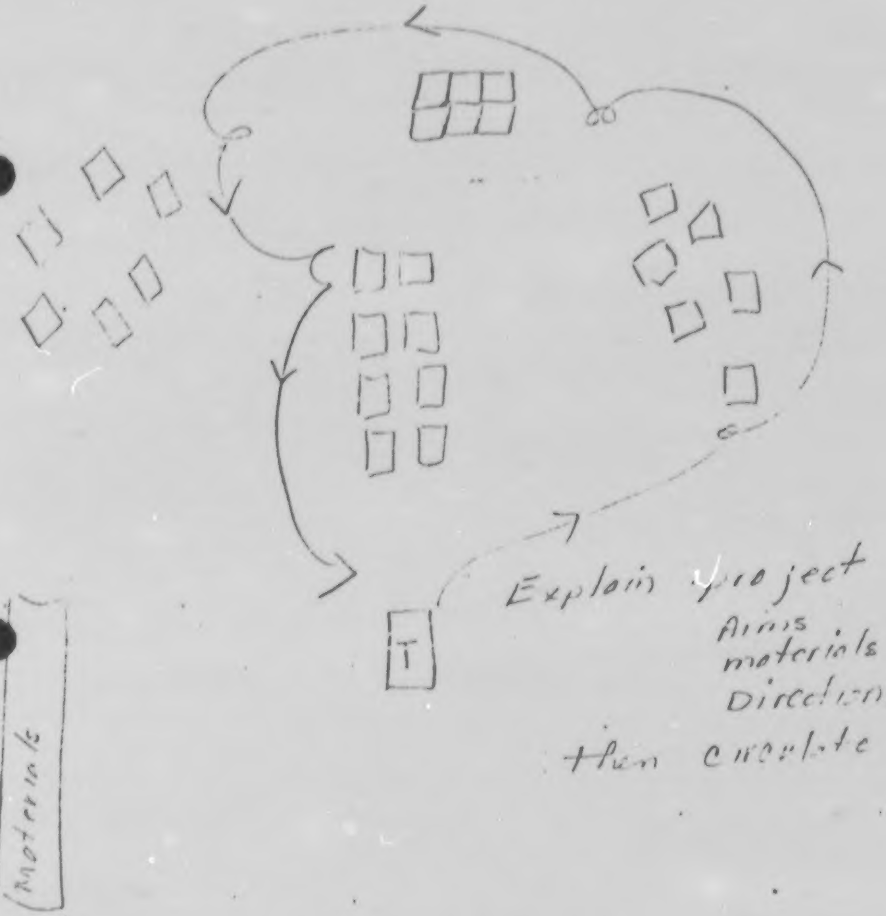

Life
MAN
SCIENCE STUDY

13. Draw a picture of a teacher with a class. Draw as complete a picture as you can. Avoid the use of stick figures. Don't worry about your artistic ability or lack of it; just draw as well as you can.



Explain project
Aims
materials
Directions (questions)
then circulate and Listen!

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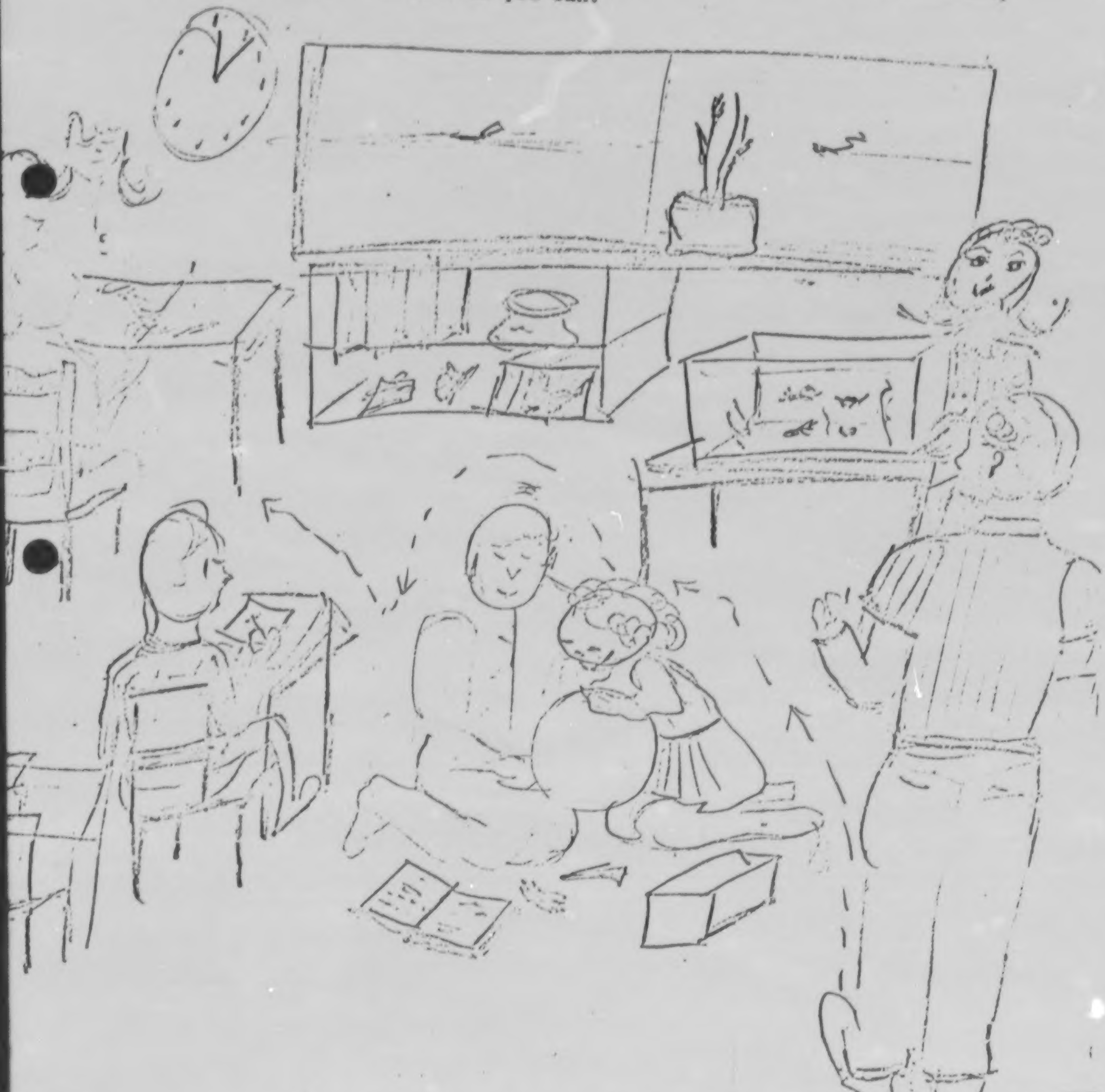
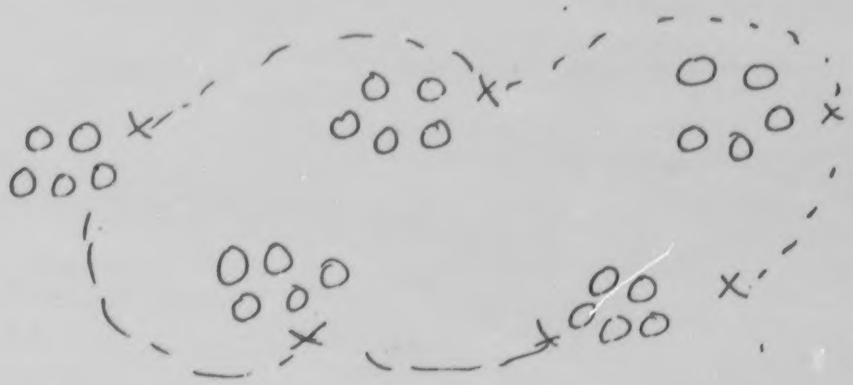
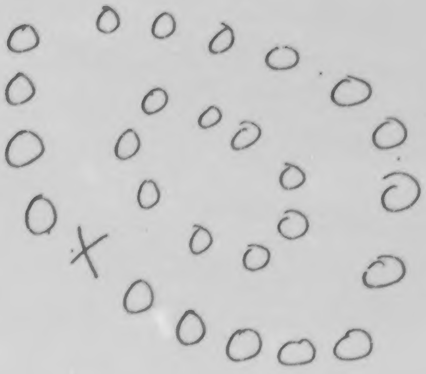


Draw a picture of a teacher with a class. Draw as complete a picture as you can. Avoid the use of stick figures. Don't worry about your artistic ability or lack of it; just draw as well as you can.

represent students
presents teacher



or



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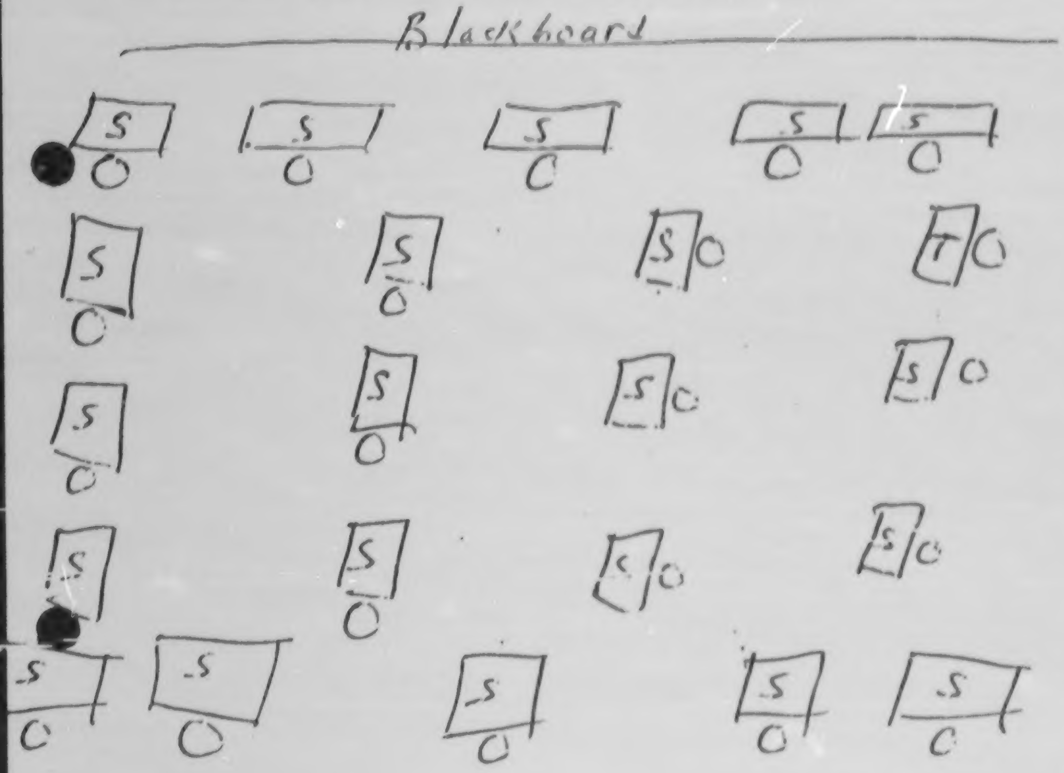
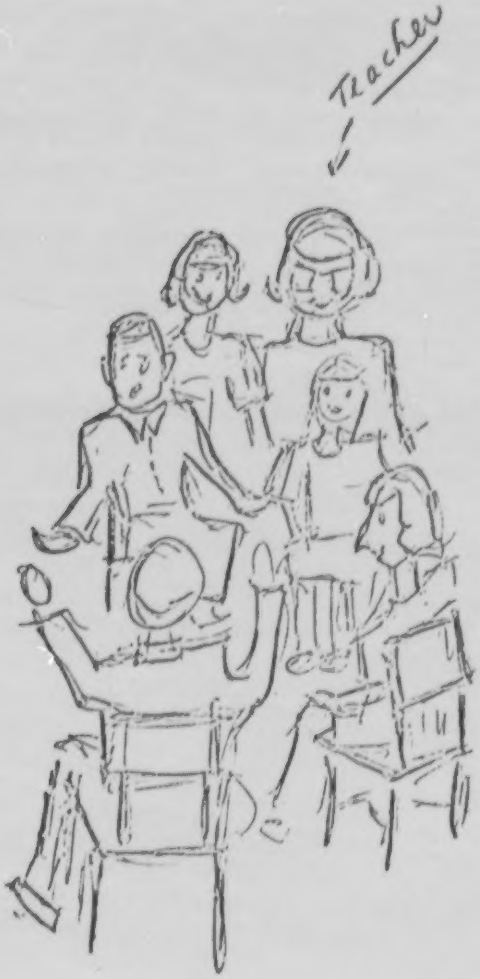


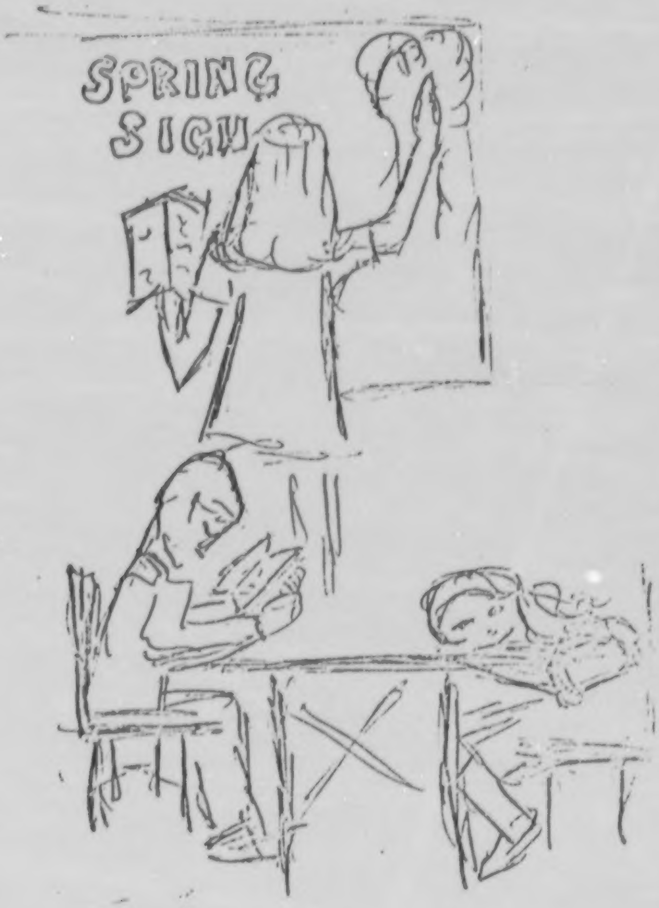
S = Student

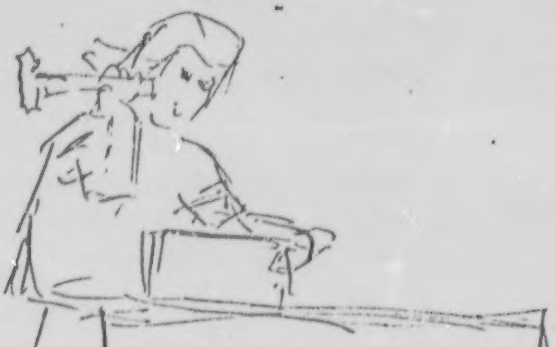
T = Teacher

Desks are shifted at will, depending upon activity.

13. Draw a picture of a teacher with a class. Draw as complete a picture as you can. Avoid the use of stick figures. Don't worry about your artistic abilit or lack of it; just draw as well as you can.




SPRING
SIGN



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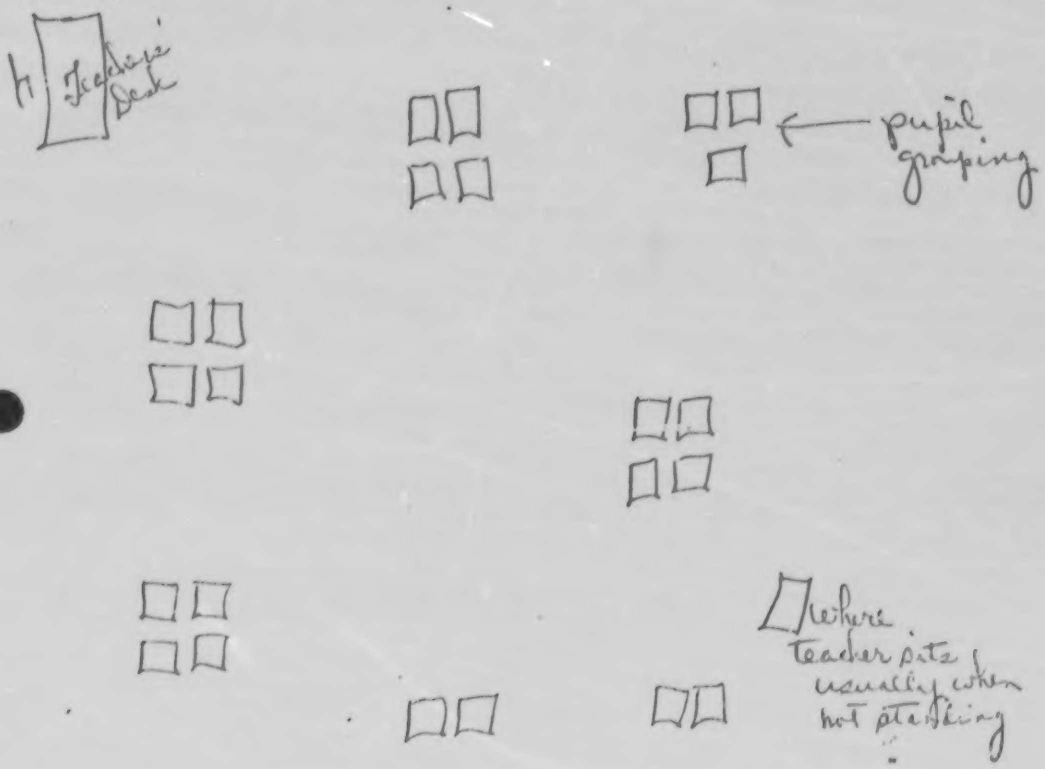
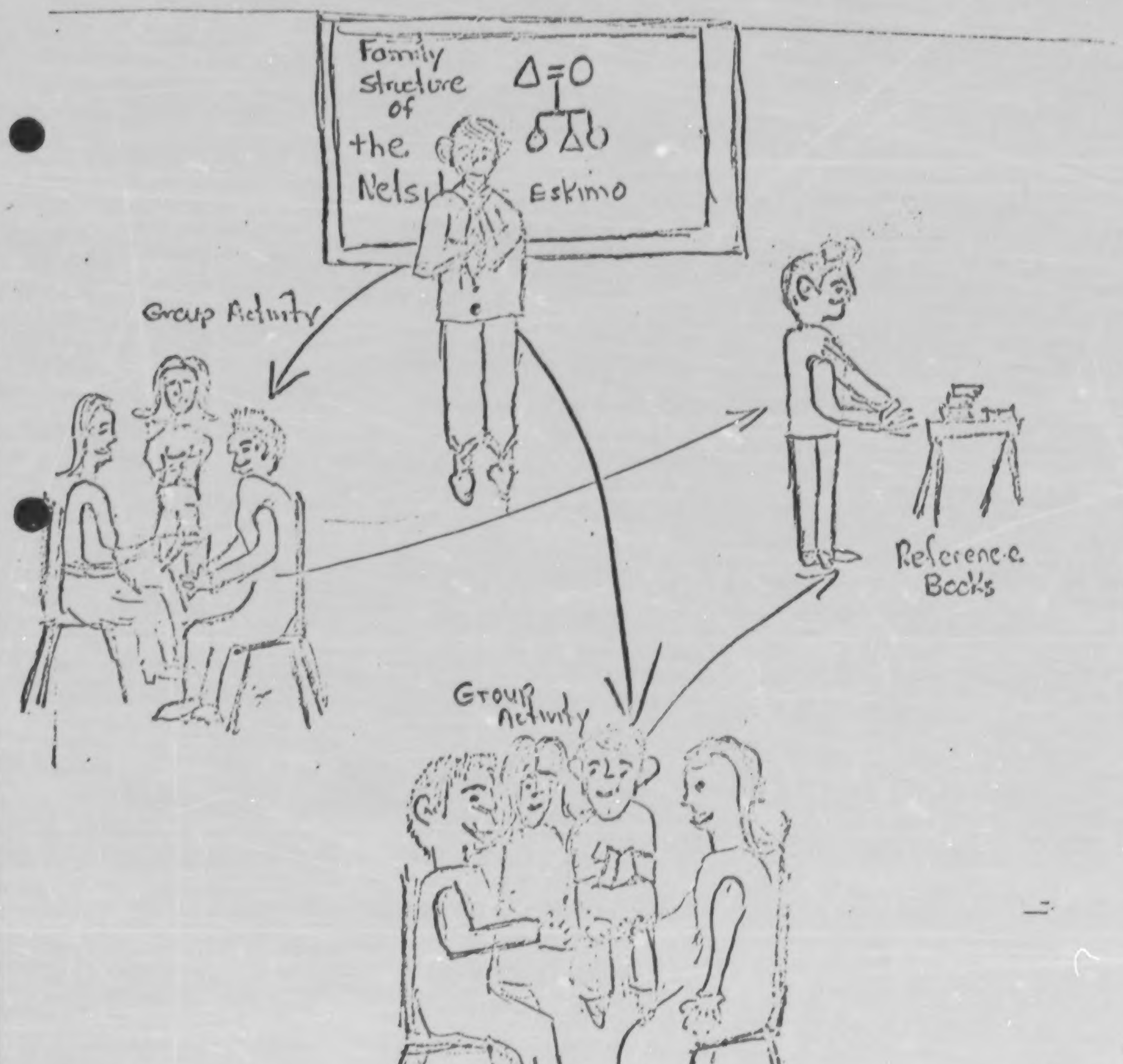
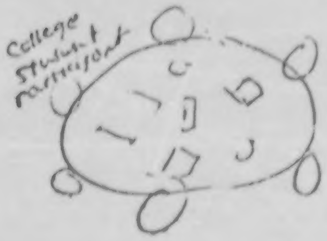
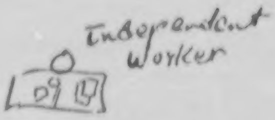

h
Teacher's Desk
pupil grouping
where teacher sits usually when not standing

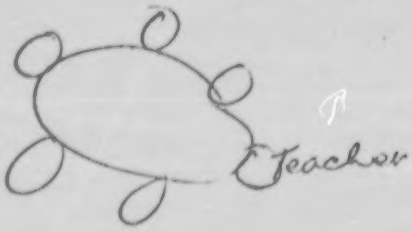
13. Draw a picture of a teacher with a class. Draw as complete a picture as you can. Avoid the use of stick figures. Don't worry about your artistic ability or lack of it; just draw as well as you can. study

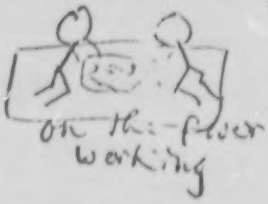

Family Structure of the Nels Eskimo
Δ=O
Group Activity
Reference Books
Group Activity

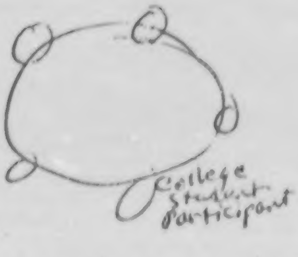
13. Draw a picture of a teacher with a class. Draw as complete a picture as you can. Avoid the use of stick figures. Don't worry about your artistic ability or lack of it; just draw as well as you can.

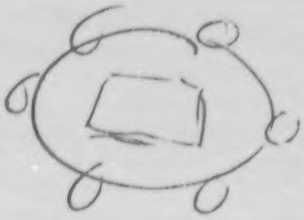

College student participant


Independent worker



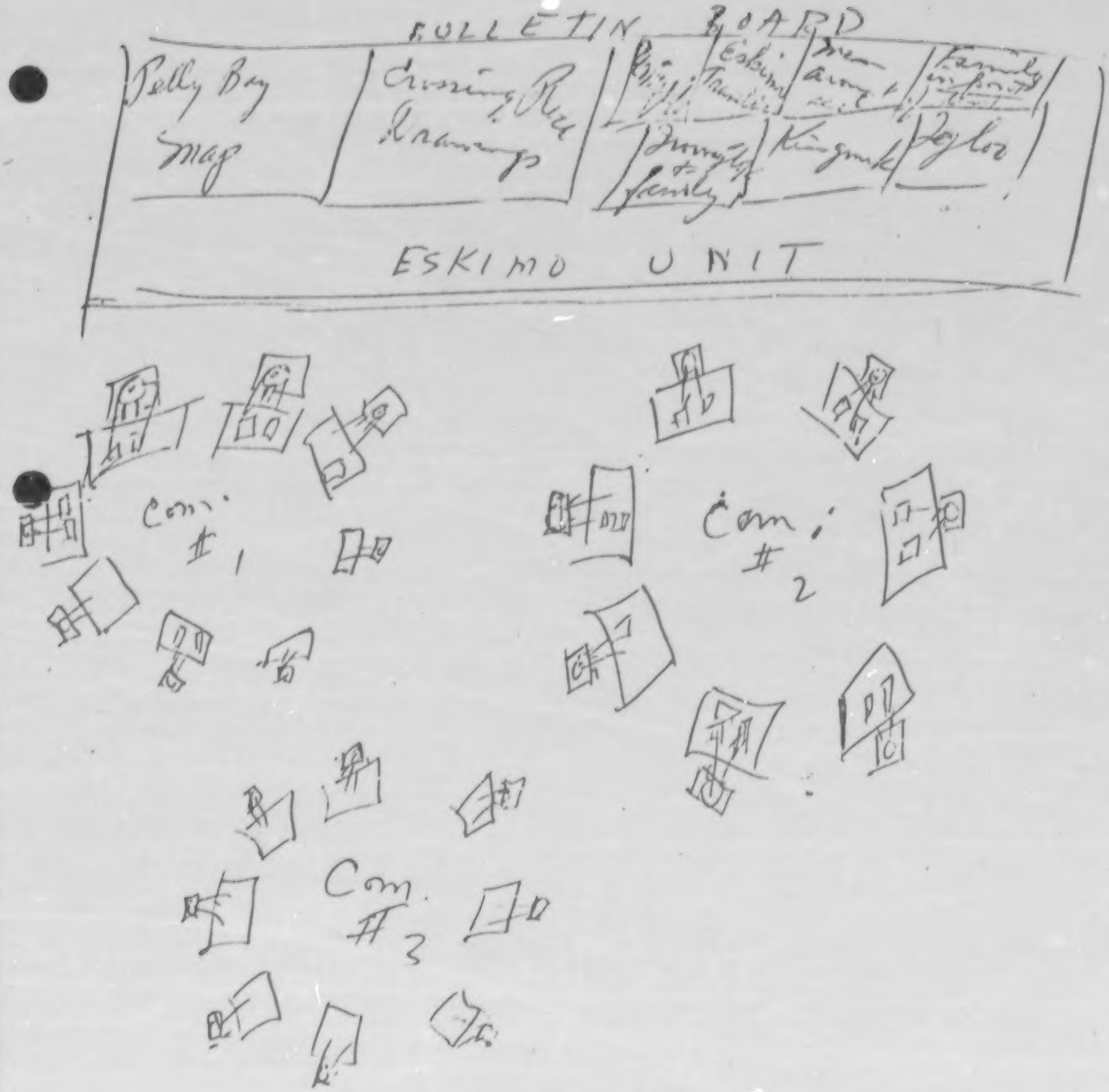

On the floor working


College student participant



Planning or/and working on a project.

13. Draw a picture of a teacher with a class. Draw as complete a picture as you can. Avoid the use of stick figures. Don't worry about your artistic ability or lack of it; just draw as well as you can.


BULLETIN BOARD
Pelly Bay Map
Crossing River Drawings
Eskimo Families
Family in boat
Igloo
Kingmuk
family
ESKIMO UNIT
Com. #1
Com. #2
Com. #3

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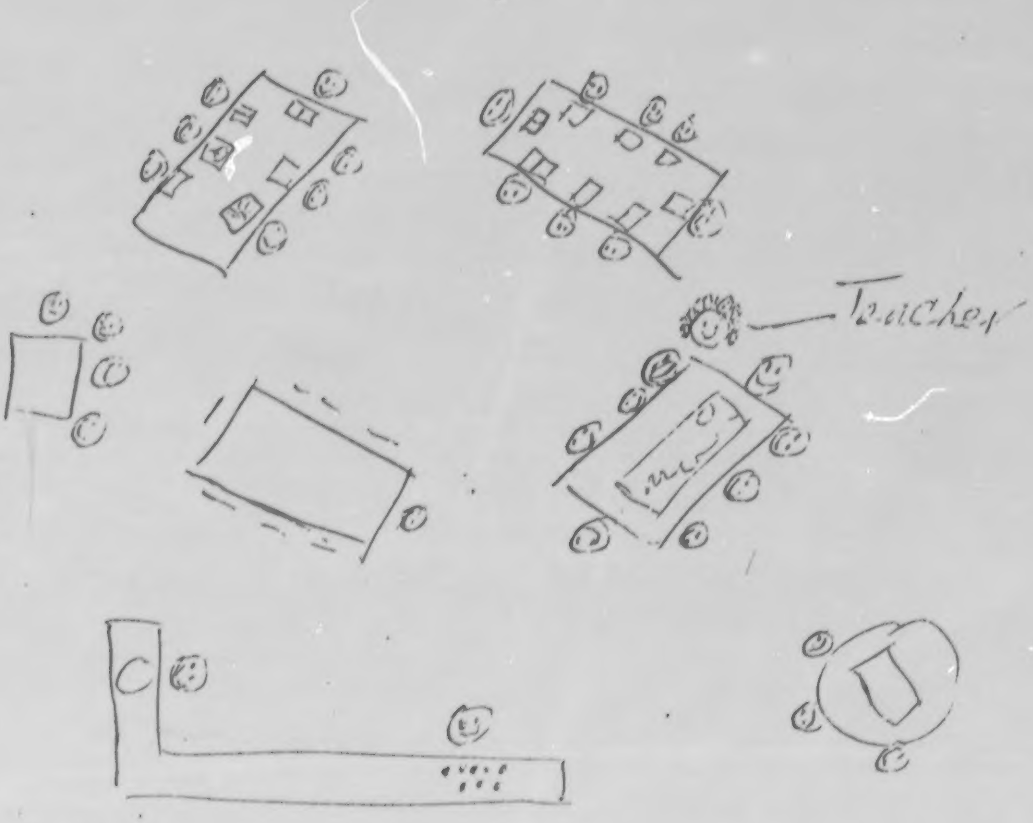

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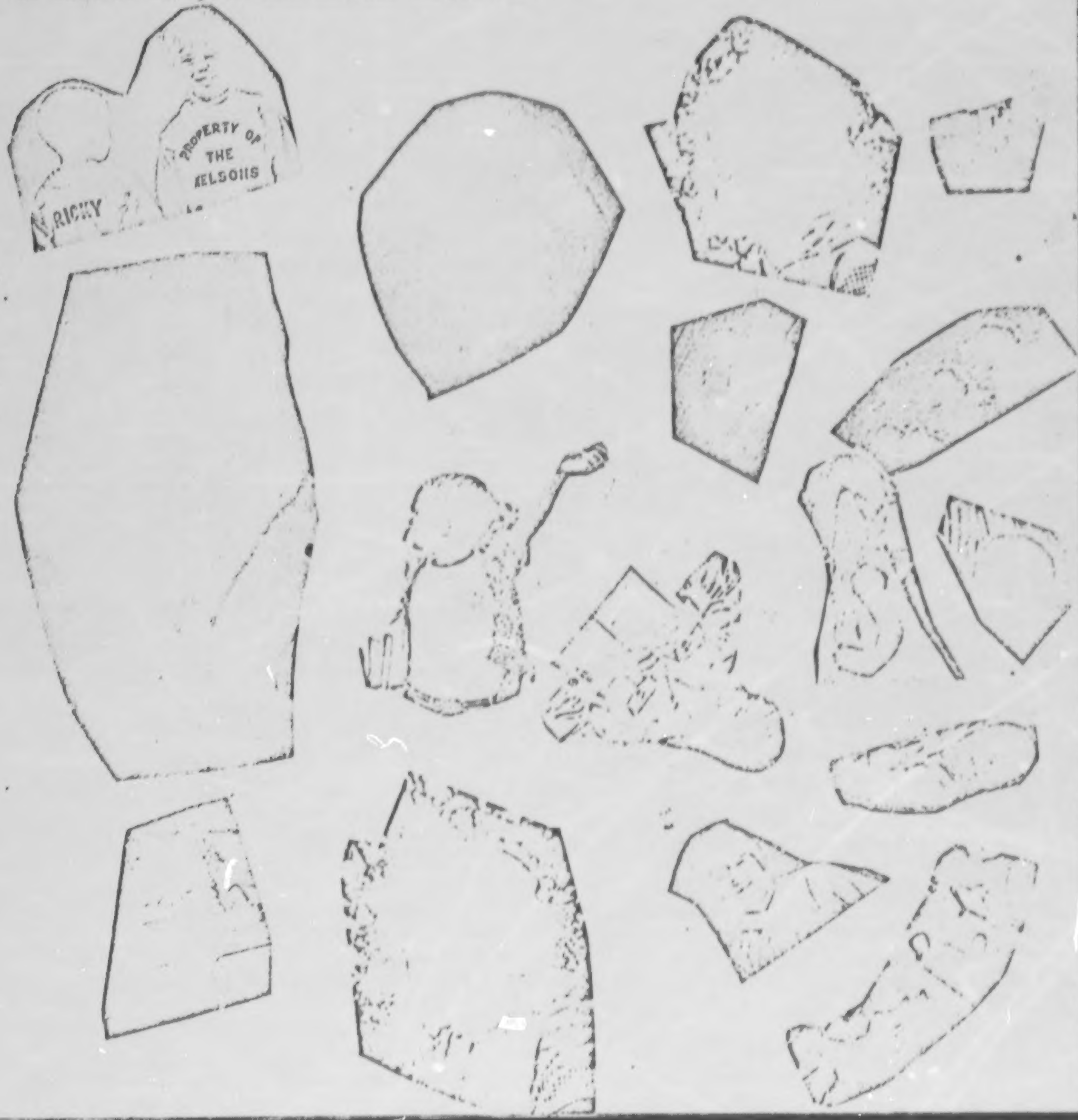
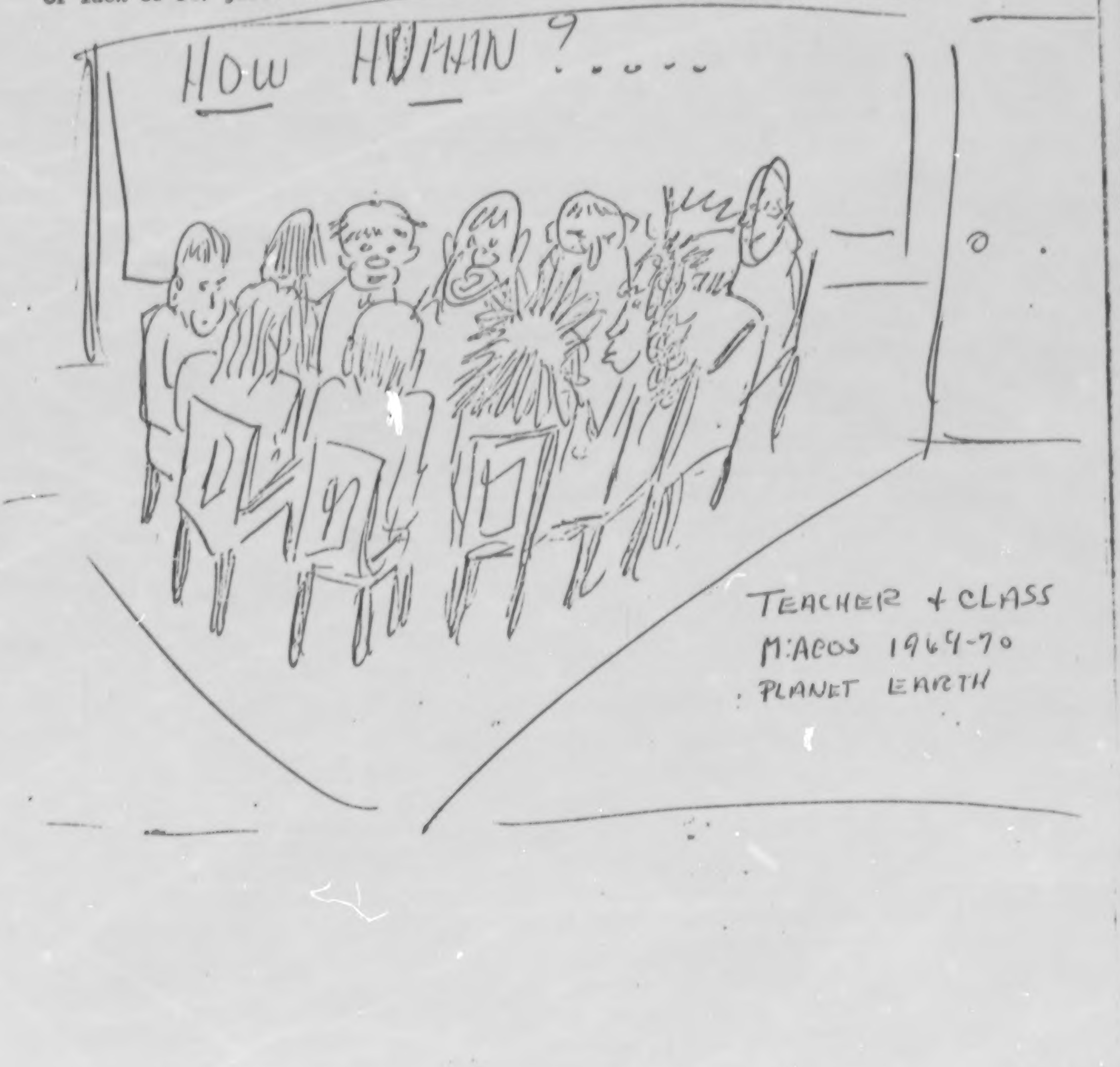

PROPERTY OF
THE
ELSONS
RICKY

13. Draw a picture of a teacher with a class. Draw as complete a picture as you can. Avoid the use of stick figures. Don't worry about your artistic ability or lack of it; just draw as well as you can.

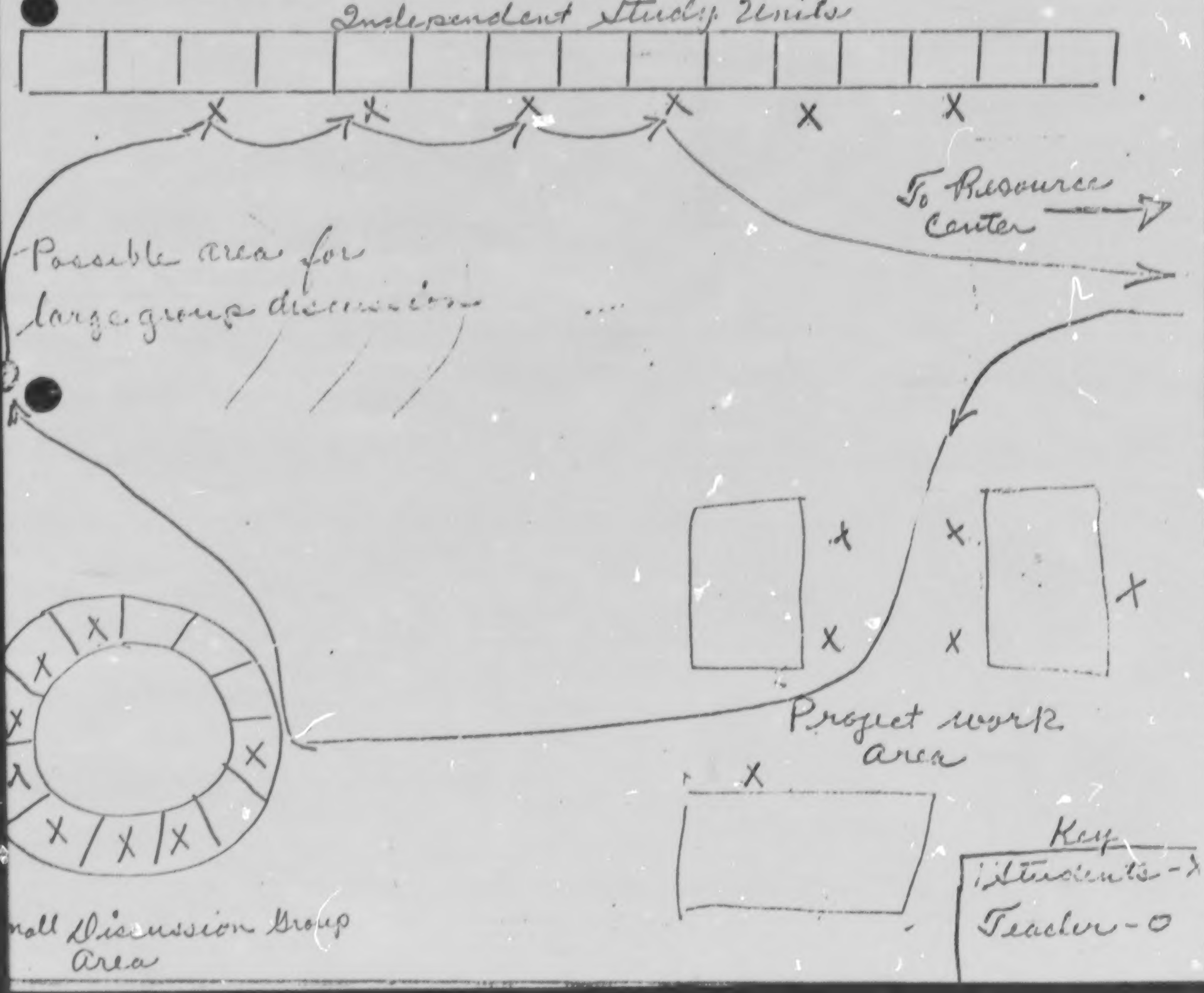


TEACHER + CLASS
M:ACOS 1969-70
PLANET EARTH

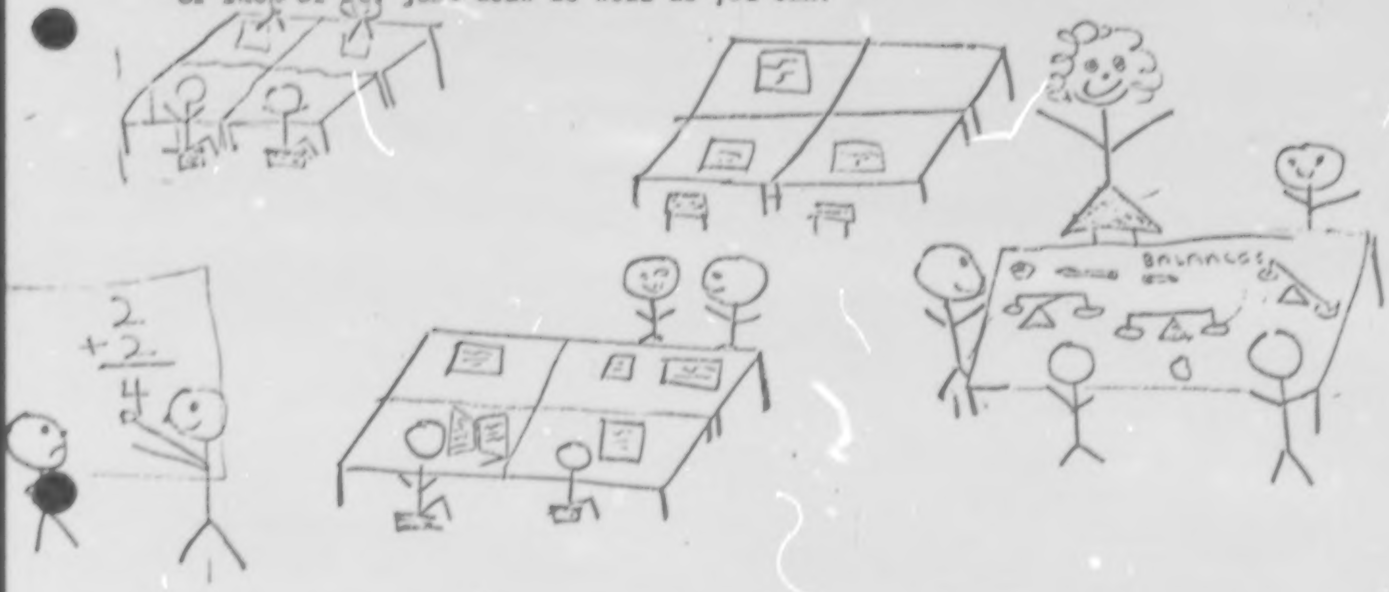
DRAW A CLASSROOM

NON-M:ACS TEACHERS

12. Draw a picture of a teacher with a class. Draw as complete a picture as you can. Avoid the use of stick figures. Don't worry about your artistic ability or lack of it, just draw as well as you can.


Independent Study Units
X
X
X
X
X
X
To Resource Center
Possible area for large group discussion
Project work area
mall Discussion Group Area
Key
Students -
Teacher - O

12. Draw a picture of a teacher with a class. Draw as complete a picture as you can. Avoid the use of stick figures. Don't worry about your artistic ability or lack of it, just draw as well as you can.



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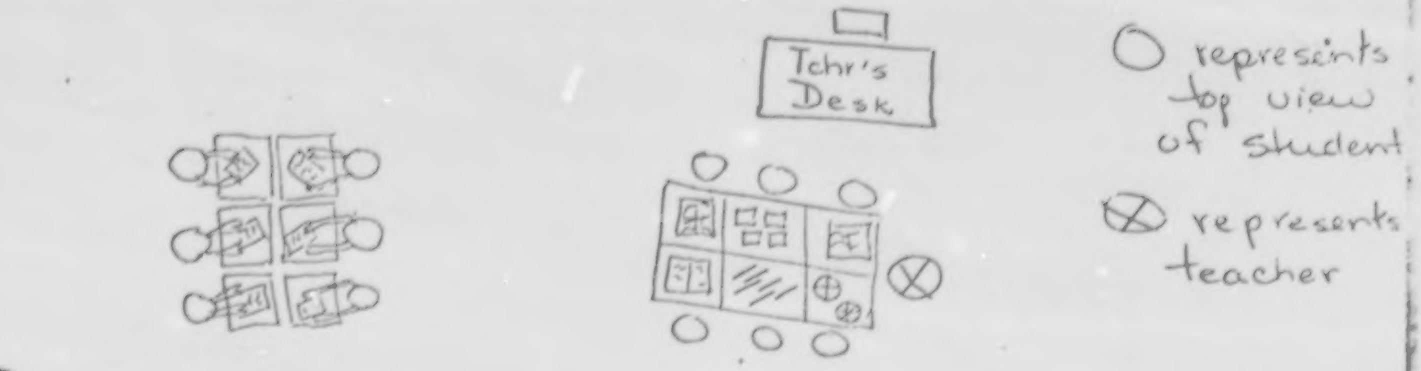
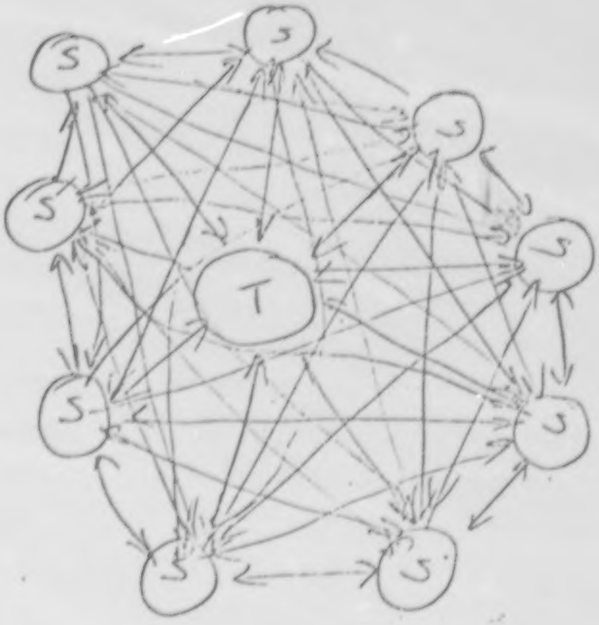

Tchr's Desk
○ represents top view of student
⊗ represents teacher
SCIENCE TABLE
Library Table

12. Draw a picture of a teacher with a class. Draw as complete a picture as you can. Avoid the use of stick figures. Don't worry about your artistic ability or lack of it, just draw as well as you can.



12. Draw a picture of a teacher with a class. Draw as complete a picture as you can. Avoid the use of stick figures. Don't worry about your artistic ability or lack of it, just draw as well as you can.

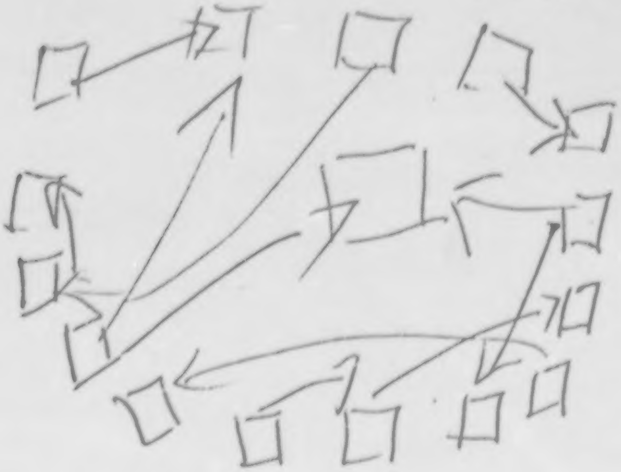
THE Picture could be drawn many ways. I don't favor any particular drawing. weather "Teacher centered" or child centered — "THERE ARE TIMES FOR BOTH AND A lot MORE,"

12. Draw a picture of a teacher with a class. Draw as complete a picture as you can. Avoid the use of stick figures. Don't worry about your artistic ability or lack of it, just draw as well as you can.

I can't do this as it would take many pictures to represent one teacher and her class from day to day as there will be continual changes ~~between~~ in the relationships between the people that make up the classroom, and what they are trying to do.

12. Draw a picture of a teacher with a class. Draw as complete a picture as you can. Avoid the use of stick figures. Don't worry about your artistic ability or lack of it, just draw as well as you can.

and so on —



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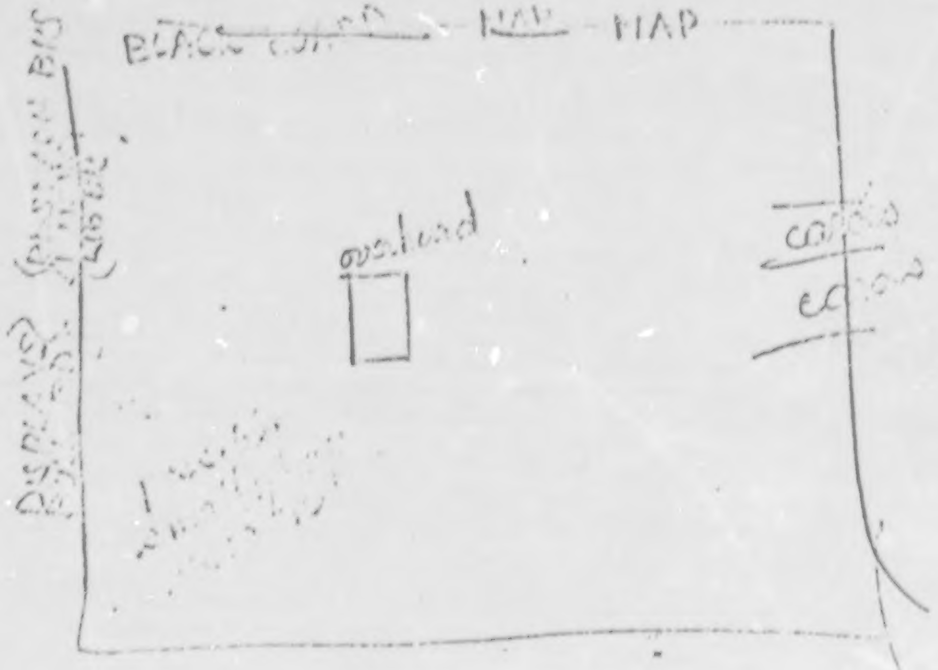
BLACK BOARD
MAP
MAP
DISPLAY
overhead